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KAFIR CORN:

A New Forage Plant For Droughty Regions

By Prof. C. C. Georgeson.

[Bulletin 37, U. S. Department of Agriculture.]

CHARACTERISTICS, CULTURE, AND USES.

Kafir corn is a native of South Africa, and takes its name from the African tribe known as Kafirs. It belongs to the same group of plants as broom corn and other non-saccharine sorghums. It was introduced some 10 years ago by the United States Department of Agriculture and distributed all over the country. It was first sent to the Southern States, where it did well, and the following year it was distributed in the North also. The reports from these trials were generally favorable. In California it was highly appreciated, and soon became a favorite food for chickens. The farmers of Kansas and Oklahoma have given it much attention during the three or four years past and, finding it a valuable stock food, are cultivating it on a large and ever-increasing scale. Its drouth-resisting qualities have recommended it especially to farmers living in localities too dry for the best development of corn.

VARIETIES.

There is at present a lamentable confusion in the names of the so-called non-saccharine varieties of sorghum, and it is difficult to determine how many should be classed as Kafir corn. The Kansas Experiment Station grew nearly a hundred kinds of these sorghums in 1891 and 1892, the seed of which had been collected by United States Consuls at points in Africa, India, and China. Most of them failed to mature seed, but of those which succeeded several would answer the description of Kafir corn. At present there are at least three varieties popularly called Kafir corn. They may be described as follows:

Red Kafir Corn.—Plant from 4 to 6 feet tall, according to soil, season, and culture. Stalk close-jointed, producing 9 to 14 leaves. Leaves thick, somewhat rough, and stiffer than corn leaves. The plant rarely suckers, but it will occasionally throw out branches from the upper joints. The sheaths are quite generally colored red or purple in patches and spots, due to a blight. Head upright, long, and narrow, always pushing clear of the sheath of the upper leaf; spikelets short, compact, and held close to the head. Seed red or light brown, small, almost round, brittle, starchy, and packed so closely in the head that the stems and hulls are scarcely visible. Hulls (glumes) small, thin, brown, covering less than half of each seed.

White Kafir Corn.—Like the red variety, the plant is short-jointed and has an abundance of foliage, but does not grow quite so tall. The head is upright, slender, compact, but frequently fails to shoot out of the enveloping sheath, the portion remaining covered being worthless, as it either fails to form seed or the seed formed molds and spoils. The seed is white, slightly flattened sidewise, starchy, and pleasant to the taste. The hulls are gray or greenish white, hairy, somewhat larger and more conspicuous than those of the red variety. The ripe seed shells out readily in handling.

Black-hulled White Kafir Corn (African millet.)—Plant like the foregoing. Head upright, rather shorter, broader, and looser than that of the red sort; sometimes narrow below and broad above, making it somewhat club-shaped. This is due to the fact that the spikelets are longer than those on the white variety, with a tendency to spread. Seed white, many grains having a reddish or brown spot, somewhat larger than the red. Hulls gray, brown, or black, hairy, larger than the hulls on the red sort. The head shoots clear of the enveloping sheath. The cut illustrates this variety as grown in a field. The variety goes by the three names of Black-hulled white Kafir corn, White Kafir corn, and African millet.

The red and white varieties have been grown at the Kansas Station for several years, with the following results: Under the same conditions the red variety has invariably outyielded the white, both in grain and fodder; it grows some 6 to 9 inches taller; it matures its seed a little earlier, and the head always pushes clear of the upper sheath; it does not shell in handling, and has a more succulent stalk. On the other hand, the white variety has a pleasanter taste and produces grain which is not at all astringent, and is therefore better relished by stock.

The Black-hulled white Kafir corn has only been grown here the past season, but it appears to have all the good qualities of the red variety, and has, in addition, a white seed. The seed coat also is non-astringent, a characteristic of all white seed of the sorghum tribe. If further tests show that the black-hulled white variety yields as well as the red, it will undoubtedly take the lead.

There appears to be a strong tendency to variation in this group of sorghums. With skillful selection and breeding, varieties could doubtless be developed superior to any now known. Great care in the selection of seed and to prevent crossing with other sorghums is necessary in order to prevent deterioration.

SOILS AND CLIMATE ADAPTED TO KAFIR CORN.

Like all other crops, Kafir corn yields best on rich land. It responds well to generous treatment. Its culture, however, is not limited to soils of certain classes and qualities. It may be grown on stiff clays and on light sand, in river bottoms and on poor uplands, and it will yield profitable returns on soil too poor for corn.

Perhaps the strongest recommendation of Kafir corn lies in the fact that it will produce a crop on less rain than is required for corn, and that it is not affected so disastrously by hot winds. It is, therefore, especially adapted to the semi-arid West, where corn succeeds only once in five or six years because of hot winds and drouth. It is owing chiefly to this quality that its culture has spread so rapidly in Kansas and Oklahoma. Hot winds are the main cause of the failure of the corn crop in this region, and they are never more destructive than when they happen to come when the corn is tasseling. They cause the pollen to dry up, and the silk is not fertilized. Even with a sufficient rainfall, a few days of these withering blasts from the southwest, in tasseling time, may reduce the yield of corn 50 per cent. Kafir corn is not affected in the same way. Fertilization takes place more readily and the whole plant is better adapted to stand dry weather. The leaves are thicker and coarser than corn leaves, and do not dry out so readily; they are closer together and partly protect each other, and the plant is not so tall, and therefore not so much exposed. When corn has once been stunted by drouth or hot winds it never recovers. Not so with Kafir corn. It may remain stationary and curled for days and even weeks, but when the hot winds cease and rain comes it will revive, and, if not too late in the season, will still produce a crop of grain.

While it can be grown to perfection in southern and middle latitudes, the northern limit of its successful culture is as yet not well defined. In tests at the Ontario Agricultural College the season appeared to be too short for the grain to mature. Henry does not consider it suited to Wisconsin. The Michigan Station regards it as inferior to corn for forage. Possibly further trials may cause a revision of these opinions, but it will, nevertheless, be wisest for the farmers in the northern tier of States to grow it at first only on a small scale.

PREPARATION OF THE SOIL.

The soil should be prepared as for corn. Plow and harrow to bring the soil to a fine tilth. If it has been subsoiled the previous Fall, all the better. If the surface is rough it should be worked with a pulverizer till reduced. An even, mellow surface facilitates cultivation. The young plants are feeble and of slow growth during the first six weeks, and a rough, uneven surface cannot be worked without covering them up.

Seeding takes place, according to the latitude, from the middle of March in the South to the beginning of June in the North. At the Kansas Station the seed is usually put in the ground about the middle of May. There is nothing gained by seeding before the soil is warm. A good rule to follow is to seed as soon as corn planting is finished.

METHOD OF SEEDING.

Kafir corn can be grown either in hills or in drills, but the latter is considered preferable. The rows should be from 2.5 feet to 3.5 feet apart. The stalks will vary in hight from 4 to 6.5, feet, according to richness of soil and thickness of stand, the richer soil producing the heavier growth and therefore requiring the wider rows. It may be seeded with a corn planter fitted with sorghum or broom-corn plates. At the Kansas Station a shoe grain drill with press wheels and force feed is generally used. The shoes are eight inches apart; therefore, by leaving the first and fourth feeds open and covering up all the others, the rows are sown 32 inches apart. It requires about six pounds to seed an acre. A little practice on bare, hard ground where the seed can be seen will soon show how the feed bar should be set to discharge the right amount. It is better that the stand should be a little too thick than not thick enough. For a maximum crop of grain on soil of moderate fertility the plants should stand from four to six inches apart in the row, and on rich soil nine inches. If a maximum crop of fodder is wanted in addition to a good yield of grain, put in 10 to 12 pounds of seed to the acre.

KAFIR CORN.

Kafir corn is sometimes sown for hay, that is, it is sown thick, either with a drill or broadcast, and the crop, when headed, cut with a mower and treated as a hay crop. If cut early it may produce two crops. Some variety of sweet sorghum, however, is better suited for hay. In the middle West the Kansas Orange is a good variety, and in the North the Early Amber.

Listing Kafir corn, as corn is listed, is not recommended. The plants are spindling and of slow growth during the first few weeks, and if a heavy rain should fall during that time it would either wash the soil into the furrows and bury the plants or the furrows would serve as drains, with the result that the crop would be washed out. There is another objection to listing. On account of the slow growth of the plants, the weeds soon get the start of them, and it is practically impossible to cultivate without covering the plants. If listing is practiced at all, the furrows should be very shallow.

CULTIVATION.

The crop should be cultivated like sorghum or corn. The weeds should be kept down from the start, using preferably a spring-toothed cultivator, which will not throw the earth much, with fenders attached while the plants are small to prevent covering them up.

The roots are near the surface. Investigations at the Kansas Station last Summer showed that the roots reach out four to six feet laterally in all directions and that most of them are from two to six inches from the surface. Deep culture is, therefore, a mistake, since it destroys a large portion of the feeders and to that extent weakens the plants. The surface soil should be kept mellow until the crop begins to head, when cultivation should cease. If seeded about the middle of May, the plants will head early in August and the grain will be ripe about the middle of September.

HARVESTING.

The crop should be cut and shocked as soon as the grain is ripe. English sparrows will damage it badly if they have the chance. Overripeness also causes the white Kafir corn to shell when handled. Unlike corn, all varieties have the very desirable quality of remaining green, after the grain matures, until killed by frost. The fodder is, therefore, still in excellent condition when the grain ripens, and when cured will make better feed than if the plant had dried up as the corn plant does.

The crop can be harvested in several ways. At the Kansas Station it is usually cut with a sled cutter, which takes two rows at a time. The cutter is pulled by one horse and requires two attendants, one to care for each row. The crop is collected in armfuls as cut, and shocked. Any good corncutter will do the work. It can, of course, also be cut by hand if a machine is not available. A light, short crop may even be cut with a self-binder. Some growers use a header, collecting the heads only and leaving the fodder to be eaten off by stock. The header will cut off a large per cent of green leaves with the heads, which renders the curing of the latter, preparatory to the thrashing, more difficult. In that case, it is best to pile them with layers of dry straw to prevent heating.

When the heads are cured and ready to thrash, there are again several modes of procedure. The most common way is to cut the heads off with a corn knife. A large armfull is laid with the heads across a block of wood, when a few strokes sever them. It may be thrashed without severing the heads, either by running the whole plant through the thrasher—which, however, is not desirable, as it breaks the leaves up very badly—or by sticking the heads of an armful of plants into the cylinder for an instant until the grain is beaten out.

Still other growers cut the heads off one by one in the field and throw them in a wagon, as they would gather corn that has not been cut. This, however, would seem to be too slow a process to suit many people.

Lastly, many farmers do not thrash the grain at all, but feed the stalk, head and all, as cut. But even though it is fed in tight boxes, so that waste by shattering is largely prevented, there is, nevertheless, a large waste in feeding the seed whole, since it is not masticated and goes through the animals undigested.

Heads which are not perfectly dry should not be thrown in large piles, as they will heat. They can be stored in narrow corncribs or in narrow rail pens, built so as to let the air pass through the mass.

In thrashing, the grain, especially of the red variety, will break badly unless the concave is removed from the machine and boards put in its place.

YIELD OF KAFIR CORN.

The yield per acre of grain and fodder must, of course, vary with the season. The red variety, as grown at the Kansas Station, has invariably outyielded both white Kafir corn and Indian corn. The average yield per acre of these three at this Station for the year 1889, 1890, 1891, and 1892 were as follows:

Yields of Red and White Kafir Corn and Indian Corn.

Variety.	Grain. Bushels.	Fodder. Tons.
Red Kafir corn	58.25	6.05
White Kafir corn	32.55	5.33
Indian corn	45.50	3.07

The grain yields refer to clean seed, 56 pounds to the bushel, and the fodder yields to the field-cured weight. In 1893 the white variety was discarded as being too light a yielder. In that year the red Kafir corn yielded 49 bushels of seed and 5.25 tons of fodder, while corn yielded 30 bushels of seed and 1.75 tons of fodder. In the extremely dry season of 1894 even the red variety failed to produce more than a light sprinkling of seed, scattered over the field, and it was not thrashed; but the fodder averaged two tons per acre. In 1895, 15 acres of the red Kafir corn averaged 41 bushels of grain and two tons of fodder per acre. Black-hulled white Kafir corn (grown at the Kansas Station for the first time in 1895) yielded in plats at the rate of 34.03 bushels of grain and 1.23 tons of fodder per acre, and corn produced 23.05 bushels per acre. In 1891 the red variety produced the highest yield on record here, viz, 98 bushels per acre. The same year the Nebraska Station reports a yield of 112.5 bushels of grain per acre, variety not named. At the North Louisiana Station, in 1893 Kafir corn produced four tons of fodder and 10 bushels of grain per acre. In the same year, at the Arkansas Station, it produced 5,178 pounds of dry fodder per acre.

COMPOSITION OF KAFIR CORN.

The chemical composition of Kafir corn has not been very thoroughly studied. No analysis with reference to fertilizing constituents are available. Analysis with reference to food constituents are collected in the following table, which also includes for comparative purposes similar data for Indian corn.

These analyses show that Kafir corn compares favorably with corn in the amount of nutriment it contains, although slightly poorer, as a rule, in the more valuable food constituents—protein and fat.

Food constituents in Kafir corn and Indian corn.

	In fresh or air-dry material.					
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free extract.	Fat.
	Per cent.	P. Ct.	P. Ct.	P. Ct.	P. Ct.	P. Ct.
Kafir corn, whole plant, *a*	76.13	1.75	3.22	6.16	11.96	0.78
Kafir corn, whole plant, *b*	76.05	1.44	2.34	8.36	11.41	0.40
Average	76.09	1.60	2.78	7.26	11.69	0.59
Corn, whole plant green	79.30	1.20	1.80	5.00	12.20	0.50
Kafir corn fodder, whole plant, *c*	10.94	5.48	3.31	30.37	47.40	2.50
Corn fodder, whole plant	*11.00	4.16	6.99	22.02	53.43	2.46
Kafir corn fodder, without heads, *d*	8.67	7.14	4.89	28.02	49.75	1.53
Corn stover, without ears	†9.00	5.20	5.81	30.12	48.19	1.68
Kafir corn, mature head, *e*	16.23	2.02	6.92	6.79	65.18	2.86
Corn ears, corn-and-cob meal	15.10	1.50	8.50	6.60	64.80	3.50
Kafir corn seed, *f*	9.31	1.53	9.92	1.35	74.92	2.97
Corn kernels	10.90	1.50	10.50	2.10	69.60	5.40
Kafir corn flour *g*	16.75	2.18	6.62	1.16	69.47	3.82
Corn meal	15.00	1.40	9.20	1.90	68.70	3.80

Authority: *a*, Pennsylvania Station; *b*, New York Cornell Station; *c*, North Carolina Station; *d*, Kansas Station; *e*, North Carolina Station; *f*, Kansas Station; *g*, North Carolina Station.

*Assumed: Field-cured corn fodder contains on an average 42.2 per cent. of water.

†Assumed: Field-cured corn stover contains on an average 40.5 per cent. of water.

PRACTICAL FEEDING TESTS.

The feeding value of Kafir corn has not been fully worked out. So far as the writer is aware, the Kansas Station is the only one which has as yet undertaken feeding experiments with this crop, and these have been confined to the grain of the red variety. The results are summarized below.

During the Winter of 1894–95 three lots of hogs, which averaged at the beginning of the experiment about 150 pounds a head, were fed (1) Kafir corn meal, (2) corn meal, and (3) ground wheat, with a view to compare the value of these three feeds. All feeds were stirred in enough water to make a thick slop. The experiment continued for 77 days. At the end of that time the Kafir corn lot had eaten an average of 545 pounds per head and gained 106 pounds per head. This means a consumption of 5.15 pounds of feed for each pound of pork made. The corn-meal lot had eaten 573 pounds of feed per head, on which each had made a gain of 131 pounds; or, it had taken 4.38 pounds of feed to produce a pound of gain. The ground wheat lot had eaten 564 pounds of feed per head and gained 137 pounds, which is equal to a consumption of 4.11 pounds of feed for each pound of gain. In other words, 100 pounds of corn produced as much gain as 117.64 pounds of Kafir corn. This is not a flattering showing for the Kafir corn.

This station has just concluded another experiment in the same line, with the following results: Four lots of three pigs each were fed for the same period as above, 77 days, on (1) Kafir corn meal, (2) a mixture of one-third soja bean meal and two-thirds Kafir corn meal, (3) corn meal, and (4) a mixture of one-third soja bean meal and two-thirds corn meal, with gains as shown in the following table:

Gains by hogs fed Kafir corn in comparison with other foods.

	Lot 1. Kafir corn meal.	Lot 2. Kafir corn meal and soja bean meal.	Lot 3. Corn meal.	Lot 4. Corn meal and soja bean meal.
	Lbs.	Lbs.	Lbs.	Lbs.
Gain of lot, 77 days	110.50	380.00	184.00	384.50
Daily gain per pig	0.47	1.64	0.79	1.65
Food eaten per pound of gain	6.48	3.51	4.86	3.23

Here, again, the Kafir corn fell much behind the corn when both were fed alone, but when mixed with a highly-nutritious substance, like soja bean meal, the growth obtained was but slightly behind that of a similar mixture with corn as a basis. It should be stated that in this case the pigs were even smaller than in the former trial. They averaged only 63 pounds each at the beginning of the experiment.

The same Station has also made an experiment with Kafir corn as feed for cattle. Three pure-bred Aberdeen-Angus heifers, which were to be fed for the butcher, were tied up in the stable and fed, one on Kafir corn meal and cut corn stover and two on corn meal and cut corn stover. The gains of both lots were small, from the fact that they were almost fat when tied up.

During the first six weeks 1 pound of live weight was gained on 15.46 pounds Kafir corn meal and 1.65 pounds corn fodder for the heifer fed this ration; and 1 pound of gain was made on 18.47 pounds of corn meal and 2.4 pounds of corn fodder, this being the average of the two in the corn meal lot. Here the Kafir corn made decidedly the best gain. It was apparent, however, that they could not be fattened satisfactorily on these rations. The corn fodder was, therefore, changed to alfalfa, and oil meal was added to the grain ration in the same proportion for both lots, and with this change the experiment went on for six weeks longer. The results for the whole period of twelve weeks stand as follows: The heifer on Kafir corn had eaten during this time 11 pounds of Kafir corn meal, 0.54 pound of oil meal, 0.68 pound of corn fodder and 1.21 pounds of alfalfa for each pound of gain she made, or a total of 13.43 pounds of food for each pound of gain. The average amount eaten by the two on corn meal ration for each pound of gain was 9.77 pounds of corn meal, 0.63 pound of oil meal, 0.65 pound of corn fodder, and 1.26 pounds of alfalfa, a total of 12.31 pounds of food for a pound of gain. It should be noticed that this lot ate 0.09 pound of oil meal and 0.05 pound of alfalfa for each pound of gain more than the Kafir corn lot. The total amount of Kafir corn meal eaten was 1,199.28 pounds. The gain was 109 pounds. The average amount of corn meal eaten per head was 1,422.35 pounds, the average gain being 145.5 pounds.

As to the value of Kafir corn as feed for horses and mules, Capt. H. L. Scott, of Fort Sill, writes under date of March 17, 1896, that two six-mule teams (one young mules and the other old) used continually for freighing on the road, and 12 horses, six in each of two cavalry troops, were fed exclusively on black-hulled whit Kafir corn and hay for one month "with excellent results."

Many farmers in Kansas and Oklahoma report that they have grown and fed Kafir corn with gratifying success. The experiments thus far made, however, do not justify the statement sometimes made that the grain is equal to corn as a food. It should be ground before it is fed. For hogs it is best to make the meal into a slop, but it should be fed dry to horses and cattle. The fodder has not yet been experimentally studied, but cattle, horses, and sheep eat it with relish and do well on it.

The grain has been recommended as an article of human food, and several mills in Kansas have put in special machinery for grinding it. Those who have tried the flour assert that good bread and excellent cakes can be made from it. The analysis indicates that this product is similar to corn meal in composition, but is somewhat deficient in protein.

Lime Without a Limekiln.

Lime may be made in open pits as well as in close kilns. It is done in this way: A rough wall is built in a square with blocks of stone laid in mud and plastered so as to exclude the air. Some holes are left in the bottom. This is first laid with small wood in the bottom, and then in alternate layers of stone and wood. It is best to make arches in the bottom like those of a brick kiln, to put more wood in to keep up the heat. The stone is heaped up at the top and covered with mud plaster, leaving a hole in the middle for draft. The fuel is then set on fire and the fire is kept burning slowly by closing the holes at the bottom and regulating the draft. Five or six days are necessary to finish the burning, when the lime is made.

Australia has found it impossible to abate the rabbit plague. In New South Wales alone 7,000,000 acres of land have been abandoned and £1,000,000 spent. The only plan that has any good effect is wire netting, and of this 15,000 miles have been used.

MUTUAL MORTGAGES.

$150,000,000 Thrown Away Yearly.

EDITOR AMERICAN FARMER: According to the United States census the indebtedness secured by mortgages on Jan. 1, 1890, was $2,209,148,431 on acres at an average interest of 7.36 per cent., and $3,870,531,554 on lots at an average interest of 7.16 per cent. Now, as everybody knows, it is a rule in this country that mortgages run only two to four years, and that they have to be renewed after that time, generally by paying a commission by the debtor extending from 2 to 5 per cent. Thus, the average interest is raised at least 8.36 and 16.8 respectively per cent. yearly.

The average interest paid on first-class mortgages in Germany is about 4 to 5 per cent., including ½ to ½ per cent. to the sinking fund.

The rate the mortgage companies pay to their bondholders ranges from 3 to 4 per cent., 3½ per cent. being the most usual rate.

The German property owner prefers to take his loans, if he needs such, from a company which gives him the choice either to refund it in a certain time agreed upon, or to refund it by sinking fund, in payment of ½ to ½ per cent. yearly, while the small capitalist, who had formerly only the opportunity to put his savings in a savings bank, favors now in a high degree the mortgage bonds by which an acceptable rate of interest is guaranteed, leaving him beside the chance of gaining a bonus.

The German mortgage companies are unable to satisfy the demand for their bonds, and there is always a large abundance of money on the market waiting for investment in mortgage securities.

There is no reason whatever that what has been accomplished with so wonderful a success in Germany and other European countries could not be done here. It is safe to say that a solid mortgage company, established after the German style, would find no difficulties in placing mortgage bonds at a rate of 4 per cent. here as well as abroad to an extent to enable it to satisfy all justifiable want of credit of the property owners at a rate of 5 to 6 per cent., including ½ per cent. for the sinking fund.

Supposing now a farmer has a mortgage of $5,000 on his property. He would, under the present circumstances, as shown above, have to pay 8.36 per cent., or $418 yearly. The mortgage company would, at highest, ask of him only 6 per cent., including ½ per cent. to the sinking fund; that is, $300. Besides the $25 to the sinking fund, the farmer would save yearly $118. Supposing, further, that the return of payment would take in this way 40 years, the farmer would in that time not only have repaid his debt, but would have saved besides $40 to $118 and interest, or about $7,000 at least. Should he prefer to use his yearly savings for improvement of his property, he would in less than 10 years double the value of the latter.

Taking the census of 1890 as a basis, the yearly wastings of the property owners in paying unnecessarily high interests amount with the farmers to 2.36 per cent. of $2,209,148,431, or $52,135,902; with the owners of lots to 2.16 per cent. of $3,870,531,554, or $83,603,430; together to $135,739,332.

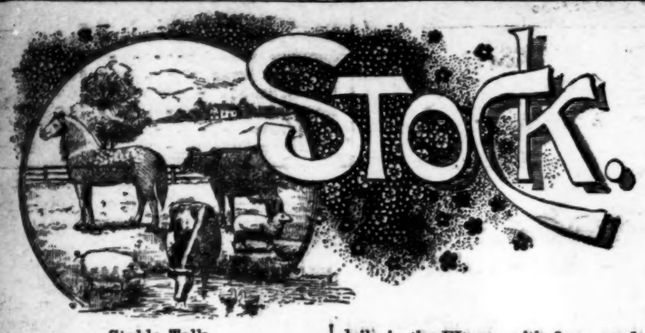
By the speedy growth of cities and towns and the cultivation of land it is safe to say that since 1890 this figure has been raised to at least $150,000,000.

If these $150,000,000 could be used in another, in a useful way, the economical life of the country would soon become a different, a better one. The farmer, now almost face to face with ruination, would again prosper, the house owner would not be obliged any longer to press the poor workingmen for unreasonable rents, and the many millions of dollars now lying idle would raise our industries and commerce to a standard according to the greatness and wealth of the country.

If the property owners would only subscribe 1-20 per cent. of their mortgaged debts, they could raise a stock capital sufficient to free them, in a comparatively short time, from their too-heavy burden.—Dr. EMIL DORN, New York.

Millet Hay for Cows.

Millet makes an excellent hay for cows and yields good and abundant milk. It will also make an excellent pasture for cows late in the Summer. On good land three tons of hay per acre may be easily grown. But it should not be left to ripen the seed before it is cut, as it gets hard and tough. The best condition for hay is when it is in full bloom, as near as may be, as it mostly blooms unevenly. The seed of this crop may be sown in June, when the hay will be ready to make in September. The golden German millet is considered the best; it is certainly the most prolific



Stable Talk.

Lice on colts can be killed off with a few applications of linseed oil two parts to coal oil one part. Each application kills off the lice and new broods that stop the growth of young stock. Examine the stock carefully.

The depression in the horse breeding industry in Russia has begun to attract the attention of the Government. It is estimated that empire has about 30,000,000 horses, the greater part of which belong to the peasants, and among these the depression is so great that officials are discussing the advisability of offering assistance. At present 30 per cent. of the peasant establishments are without horses, and the latest animal census is not at all reassuring, for it appears that in 422 districts, in which 12,700,000 horses were registered, the increase in the last six years has been less than 5 per cent.

daily in the Winter, with five pounds of meal or bran and meal. Thus 3,000 pounds of hay will be required to winter a cow as she should be.

Feeding for Beef.

Speaking of improving the quality of beef, Prof. Gulley says: "I have tested several foods for the purpose, and among them sorghum, which I first grew in 1892. Sorghum will produce as much grain as a good corn crop and is better adapted to a hot and dry climate than corn. Many experiments have been conducted to determine what the effect of sorghum is upon the animal. Notwithstanding the fact that many scoff at the idea of scientific feeding, dairymen and many that feed for beef are realizing that there is much in it. What is known as a balanced food ration must be fed to give the best results."—*Arizona Experiment Station.*

PRIMEVAL CATTLE.

The Probable Ancestors of Our Present Herds of Fat Beeves and Gentle Kine.

The Berlin *Illustrirte Landwirtschaftlich Zeitung* gives the following pictures, taken from a "History of Muscovite Wonders," published in 1567, of cattle then living in remote districts of Poland and Russia, but which have since become extinct. Some specimens were preserved in Eastern Prussia down to as late as 1755, when they were killed by cattle thieves. There were also some specimens in Hungary. They undoubtedly represent the parentage from which many of our breeds of cattle are descended.

Ich bin ein Ure/so von den Polen ein Tur/von den Teutschen ein Auroy/
auch bißher von den ernannten enden Bisons genennet worden.

Translation of inscription: "I am an Ox, called by the Poles a Tur, by the Germans a Primeval Bull, and by the ignorant a Bison."

Ich bin ein Bisons/so von den Polen ein Suber/von den Teutschen ein Bisont
aber Dannbiser/und von den ernannten enden Auroy
gebessen worden.

Translation of inscription: "I am a Bison, called a Suber by the Poles, a Bison by the Germans, and by the ignorant a Primeval Bull."

Crosses of Holsteins.

R. G. Sneath, Menlo Park, Cal., says: "The cross between the pure Holstein and Jersey cow is generally a mongrel, or mixed in an utter confusion of colors, and woolly to a great degree. The eye and deer-like head of the Jersey can be detected at times, while their form is smoother, more plump and less bony than either the Holstein or Jersey, and their size is between the two.

"The first cross between the Holstein and common stock is uniformly black and white, while about one-sixth of the second cross goes back in color to the dam of the first cross, and the crosses thereafter prove true to the Holsteins in color.

"Our present grade Holsteins give about twice as much milk as the grade Jerseys did 10 years ago, while their milk stands on an average at about four per cent. butter fat by the Babcock test, which is about the same as from the Jersey grades."

Feeding of a Calf.

A young calf for the first month of its life should have the new milk of the cow or the skimmed milk warmed to 80°. When it is a month old the quantity of milk should be increased to 10 or 12 quarts a day, and as soon as it will take a little fine meal and some fine hay or grass, it should get what it will eat. A Spring calf may be turned into a good grass lot when it is a month old, and should be tethered, and get its milk as usual. The milk may be continued for three months, when a small ration of mixed meal and bran should be given, gradually increasing the allowance until at six months old it gets a pound a day, with as good pasture as can be provided. After that the meal may be increased gradually until in the Winter the calf is stabled with the cows, and gets the same kind of feed in due proportion to its age and size. Very much may be done in this way by good feeding to improve a herd and double the value of the young stock. A full-grown cow will consume 15 pounds of good hay

Swollen Udder.

A heifer with her first calf should not be overfed before the calf comes, but for two weeks previously should have nothing but good hay. For at least a week after the calf is born this feed should be continued. After that the feed may be increased gradually, and some meal given, beginning at first with a quart twice a day, and after that increasing by safe degrees until all that can safely be fed is given. But it will never be safe to feed a young cow as an old one may be. The result of overfeeding is trouble with the udder from overexcitement of it by the excess of food, especially when meal of any kind is fed. The young cow has to be trained to feed, and this only by small degrees. When the udder is swollen and hot nothing is better than fomenting it with hot water for 15 or 20 minutes with a sponge; after this it is wiped dry and gently rubbed by the hand with vaseline and then with camphorated soap liniment. This is made by dissolving sweet oil in strong ammonia and adding half the quantity of camphorated spirit (alcohol with camphor dissolved in it). This is rubbed on the swollen udder with the hand.

Pasturing at Night.

It is not desirable to keep any animal at pasture at night. The rest thus lost counts a good deal in the useful effect of the food on the wrong side, and the manure is lost, which is an important thing. If cows or horses are kept in a clean yard, or even a comfortable stable, at night, they will lie and sleep the whole time, if they are well fed in the evening. We may be very sure this rest will be far better for the animals if we will judge by ourselves, and our mere animal nature is just the same as that of a horse or other animal, needing the same rest and supply of food as we do. The principle is the same, and this is to be remembered in the management of our four-footed servants.

Pen Notes.

F. F. Nailor, Jasper Co., Iowa: The red hog is coming to the front "one hundred thousand strong," and I make the assertion that no breed of swine has made as great a stride in the same length of time as has the Duroc-Jersey in the last decade.

Corn for Fattening.

(Prof. W. A. Henry, Wisconsin Station.

There is no hard and fast rule concerning the preparation of corn for fattening cattle, owing to the different conditions which prevail in different sections of the country and on different farms. After giving the subject much study the writer has come to the conclusion that corn meal will go farther in fattening cattle than will the same amount of grain unground. Where the corn is hard and dry I should certainly grind it for steers, rather than force them to eat it when it would make their mouths sore, and they would probably not consume nearly so much as they would were the grain in more palatable form. Wherever possible, however, I should reduce the ears to a palatable form by chopping, splitting or finally by crushing instead of grinding.

The droppings from steers fed on cornmeal are of little or no value for hogs, while the droppings from steers getting whole corn have a very considerable feeding value with hogs running after steers thus fed. I am quite strongly of the opinion, as shown by experiments, at this Station, that when the gain of the hogs following steers getting whole corn is added to the gain of the steers the combined increase will equal or exceed quite a little the gain of the steers getting the ground corn. This true, as it costs something to grind the corn, the results are in favor of feeding the corn whole when it can possibly be done, providing good lusty shoats are put after the steers. Where hogs cannot be put after the steers, or where the corn is dry and hard and the steers cannot eat all they wish because of sore mouths or other trouble, I should grind the grain.

Ration for Fattening Pigs.

The kind of ration for this use is quite unimportant, as all that is required is to feed as much good food of any kind, that is convenient, as the pigs will eat, and to coax them to eat as much as possible. Fattening any animal practically tends to disease, for excess of fat must in the end lead to disease of some kind. But this is not material in the fattening of pigs, for they are to die anyhow, soon, and they are not fed long enough to do any special harm. Peas are the best food for this use, and they make the firmest and most healthful meat. Corn comes next, and a mixture of wheat and corn next. Milk with corn makes hard meat, dry when cooked. Corn ears boiled with small potatoes is excellent and cheap food, especially as the soft ears may be fed that are not fit for other uses. These soft ears make more fat in the same time than as much ripe hard corn. A concrete floor is one of the best for a pig pen, as it is hard, dry, and impervious to mice and rats, and is easily kept clean by swilling it with water.

Just as True Here.

The *British Live Stock Journal* says: "It will not pay the breeder to raise inferior animals, neither will it benefit the purchaser to procure them. The horse-owning public has discovered that a low-priced horse is less profitable than one bought at a high price—that is, if well bought. A horse bought for $125 rarely becomes a horse of $250, while one purchased for $250 or $300 will often double, or more than double, his value with good treatment and judicious management. The rule holds good all round, in town and country. A first-class horse is readily parted with at any time, and generally at a higher price than that at which he was bought, while a purchaser for a third-class animal is not always to be obtained; and, if it has to be sold in a hurry, when its services are no longer required, the result is almost invariably a loss.

Treatment of Spavin.

This disease is an inflammation of the covering membrane of the bones of the hock joint, and affects all farm animals under similar circumstances. The causes are over-exertion, sprains, and natural tendency by inheritance. The treatment is to first remove the inflammation by cold water applications, as pounded ice in a bag tied over the part; then to use liniments, and let the animal rest. To locate the seat of any inflammatory disorder apply cold water, and notice where it soonest disappears by drying. There may be inflammation without soreness.

Feeding Pigs in a Dairy.

Pigs will feed very well on the spare milk of a dairy, with cornmeal and bran mixed with it. Ensilage may be fed to pigs thus kept with great advantage and as much growth as if on good pasture. For 100 pigs make a house 100 feet long and 20 feet wide, divided by a middle passage, and into 10 pens on each side, five pigs being kept in each pen. There should be a yard on each side of the house for each pen, with a swinging door to let the pigs out and in at pleasure. The floor should be of plank.

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SHEEP AND WOOL.

Shearings.

The situation has changed and black fleeces command a premium of from two to three cents per pound. The demand for black wool is good and the supply very scarce, therefore look for a boom in black fleeces for some time to come.

The long drouth in Australia, as is known, was the cause of enormous fatality among sheep, and the latest computation put the losses at no fewer than 9,540,000 head. It is calculated that this will mean a decrease of 180,000 bales in the clip of wool for the present year as compared with that of 1895.

The lambing season in Great Britain has been unusually successful, and some extraordinary births are recorded. Of 41 Southdown ewes, four had singles, 26 had twins, and 11 had triplets. Another flock of 13 ewes had 39 lambs. Nine Leicester ewes had 19 lambs, one having four, all strong and healthy. The favorable weather and abundant green food are the reasons.

Wm. Hanna: When sheep are turned to grass see them every day and make them glad to see you. A little bran and salt and kind treatment will do it. "Man's inhumanity to man makes countless thousands mourn," and man's inhuman treatment of animals loses man countless thousands of good dollars. Get your sheep to understand that you are the best friend they have.

The Cost of Feeding a Sheep.

The feeding of seven sheep is commonly estimated as equal to that of feeding one cow. That is, a thousand pounds of sheep is equivalent to the same weight of cattle; taking seven sheep at 150 pounds each, they are, then, as easily supported as one cow. But sheep are more easily satisfied with rougher feed than cows are, and hence it may be though that where one cow may be kept on one acre of ground a whole year, 10 sheep may be by the same good management. But sheep, so far, have not done very well on silage, nor will they, we think, on any kind of sour food. But roots are excellent for sheep, and they may be grown quite as cheaply, ton for ton, as silage.

Disease of the Heart in Sheep.

Endocarditis is not an infrequent disease of sheep. It consists of inflammation of the valves of the organ, and the formation of clots of bloodlike jelly in the valves or in the sacs of it. One result of this is apparent dizziness and staggering of the animal from the effect of the disturbance of the circulation on the brain. A remedy is generally found in the use of one to three scruples of iodide of potassium given daily for a few weeks; the dose is given in proportion to the age and size of the animal. A small quantity of carbonate of soda or potash in the food or with salt has been found useful.

Ration for a Heifer.

A heifer has extra work laid on her, as she has to complete her growth, to yield a calf and to give milk. All these require a somewhat different ration than that for a full-grown cow. There should be a larger proportion of proteine, or flesh and milk-making food, to supply the growth of the animal itself and that of the calf, and to accumulate substance for the supply of milk to come by and by. Thus the ration must be even better and narrower—that is, with more proteine in it than for a merely growing animal. There should be at least one pound of this to four of the carbonaceous matters. The following would afford about the right proportions of the foods mentioned: Clover hay, 20 pounds; pea meal, 10 pounds; corn meal, 3 pounds.

This ration will contain 25.25 pounds of dry matter, of which there will be 4.36 of proteine, 14.97 of carbonaceous matter and .60 of fat. The nutritive ratio is 1 of proteine to 3¾ of other matters. On this the young cow may be expected to yield a good supply of milk, but not so rich in butter as it will be another year, and to go on growing as well as if she had not had a calf.

Planting Corn in Drills or Hills.

The old fashion of planting corn in check rows is not practiced now, except where the land is very weedy. It is so much better to plant in drills that all the best farmers do it. The land may be kept quite clean in this way by beginning the cultivation before the weeds appear, and keeping at work at it until the corn is too tall to get through. If the land be harrowed by a light sloping tooth harrow before the young corn is seen, myriads of weeds will be killed and the harrowing may be repeated soon after the young plants appear, as the harrow will do no damage to speak of. Corn should never be worked by a plow, as this will surely injure the roots. Only shallow cultivation is permissible

Johnson Grass.

"Johnson grass will grow as long as any of the rootstock is left in the ground. The rootstocks are strong and will run for a long distance under ground and as long as left there will come up; but if kept constantly cut off as soon as it appears at the surface of the ground it will kill it. If mallow is cut off two or three inches below the surface of the ground it will not grow again. It has a long root which penetrates two or three feet into the ground. The root of this plant is a true root, while the so-called roots of Johnson grass are only underground stems. Every little knot of the knot grass left in the ground is going to grow; all must be taken out and destroyed if it is to be gotten rid of."—*Prof. Tourney, Arizona Experiment Station, Tucson.*

CANAIGRE.

Something as to Its Nature, Uses, and the Methods of Production.

[Circular No. 25 of United States Department of Agriculture.]

Canaigre (*Rumex hymenosepalus*) is a plant bearing quite a resemblance to some of the more common docks, notably sour dock. The plant grows from one to three feet high from a cluster of tuberous roots somewhat resembling small sweet potatoes. The stem is rather simple, nearly smooth, and often red. The leaves vary from ovate to lanceolate, and are two to

CANAIGRE (*Rumex hymenosepalus*).

eight inches long, tapering to a short petiole. The flower stalk is branched with compound erect branches; pedicels slender, about half the length of the fruit; fruiting valves membranous, ovate, one-fourth to one-half inch long, pinkish; seed one-eighth to one-fourth inch long. The roots are clustered in an upright position three to 12 inches below the surface of the ground. In number they vary from two to 15, are two to four inches long, and an inch or two in diameter, each weighing from two to 20 ounces when green. The plant seeds freely, but seems to propagate principally from the roots. When dug the roots may be kept for a year or more without depreciating in value in any way or impairing their germinating power.

TANNIN CONTENT.

The value of the plant consists in the amount of tannin contained in the tubers. Repeated analyses have shown that the tannin content varies from 17 to 38 per cent. in the air-dried tubers, a quantity far in excess of that in any other of our tannin-producing plants. The tannin, which is said to be rheotannic acid, seems to exist in solution in the cell sap of the tubers. The amount varies with the age and size of the root, as well as the time of harvesting. The following table, compiled from various sources, shows the percentage of tannin contained in the roots grown at various places and dug at different times:

Tannin in Canaigre.

	Fresh material.	Air-dried material.
	Per cent.	Per cent.
California, large roots	9.6	a38.51
California, small roots	.....	a41.79
California, not selected roots	.....	34.20
California, roots dug after flowering	.....	34.12
Arizona, roots from hard, sandy soil	.....	22.50
Arizona, roots from sandy loam	.....	35.60
Arizona, average 14 localities	.....	30.52
Arizona, roots dug June 4, 1892	.....	16.70
Arizona, roots dug Nov. 16, 1892	.....	24.40
Arizona, roots dug Jan. 17, 1893	.....	28.20
Arizona, young roots	3.90	15.10
Arizona, old roots	10.00	32.00
Arizona, leaves and stems	0.80	3.90
U. S. Department of Agriculture, average	.....	23.45

a Roots dried at 100° C.

WHERE GROWN.

Canaigre is found growing wild from central Indian Territory to southern Utah, and south through Texas, New Mexico, Arizona, and Southern California into Mexico. It has been successfully grown for several years in the botanic gardens at Berkeley, Cal. It was also grown in the grounds of the U. S. Department of Agriculture at Washington. Here the plants were not injured by the Winter and made a good top growth, but either on account of the soil or the climate the root development was insignificant. Roots received from Arizona, September, 1892, had made satisfactory growth at Philadelphia in April, 1893. At various places in New Mexico, Arizona, and elsewhere attempts have been made to grow canaigre under irrigation, with flattering success. There seems to be no information at hand as to the cultivation of canaigre in the Southern States, but doubtless the plant merits trial there, especially in the sandy soil of the Gulf States. Perhaps in sandy soil it may prove hardy as far north as Kansas and Colorado.

CULTURE.

A good sandy loam, with moderate cultivation, is necessary, but equally large crops have been produced on heavy soils where the roots are planted shallow and irrigated. The tubers are planted in rows 30 inches apart and nine inches apart in the row, and require about one ton of roots per acre, from which it is estimated that the first season a yield of 10 tons of green roots may be obtained, and the second and succeeding seasons 15 or even 20 tons.

In a wild state the plant makes its growth during the Winter and early Spring, and by June 1 has seeded and the tops are dead. The tubers lie dormant until after the Winter rains, when the plants make their appearance once more. A short, quick season of growth seems to be necessary for this plant.

In Arizona the time for planting is between September and March. If planted late in the Spring leaves will appear and die down at the usual time, and the root will lie dormant throughout the Summer, beginning the formation of a new crop at the regular season, with no apparent advantage or disadvantage, as compared with roots planted just before the growing season.

The time of harvesting begins after the plant has made its full period of growth, and it has been found that the per cent. of tannin increases as the tubers lie dormant in the ground, but the increase is very gradual after July.

The preparation of the land for planting and the cultivation of the crop are very similar to the methods used for Irish potatoes or other root crops. The cost of cultivating an acre in Arizona is estimated at $16.50, which includes the irrigating and harvesting.

PREPARATION FOR MARKET.

As prepared for market the roots are sliced into pieces about one-twentieth to one-fourth of an inch thick and dried in the sun. When thus prepared they lose about two-thirds their weight, and the dried product contains from 20 to 35 per cent. tannin. Another method of preparation is by the making of an extract from the roots, which contains from 60 to 65 per cent. tannin. This extract has been tested by Prof. Eitner, of the Vienna (Austria) Research Station for Leather Industry, and pronounced by him as especially adapted for tanning uppers, fine saddlery, and fancy leathers.

SUPPLY—VALUE.

The supply of wild canaigre is rapidly becoming exhausted. From Jan. 1, 1891, to Oct. 31, 1892, there were shipped to Europe, over the Southern Pacific Railway, 370 carloads of the sliced and dried roots, valued at $40 to $65 per ton. It is said that in New Mexico the green root is worth about $5 per ton.

STEEL-TRACK HIGHWAYS.

Money and Labor-Saving Device of ex-Senator O'Donnell.

Ex-Senator John O'Donnell, formerly a Railroad Commissioner of New York State, has devised a system of steel-track highways which he hopes to see adopted by the rural communities of the country as a set-off to high freight rates by railways.

On an ordinary macadamized highway, two steel gutters, each five inches wide and half an inch deep, are laid on longitudinal stringpieces and cross wooden ties at a width of four feet eight and one-half inches from center to center. To insure perfect drainage, side channels are conducted at frequent intervals from these gutters to the outside of the road.

Mr. O'Donnell quotes from the December bulletin of the Road Department at Washington to show that 313,349,227 tons of farm products were hauled over country roads in one year at a cost of $663,869,000, or about 24 per cent. of the total value of the products. Nearly two-thirds of this amount could be saved by good roads.

The following example is quoted by Mr. O'Donnell to show the prospective advantage to be gained from the use of steel-track gutters:

"At a point on a connecting lateral road with the New York Central, 20 teams in the Fall of the year delivered 20 loads of cheese from a factory 12 miles from the railroad. The average load was 1,600 pounds. It took all day to deliver the 32,000 pounds of cheese and return. On a steel-track road that cheese could have been delivered by one team in less time and in better condition, thereby saving 19 teams and 19 men, fairly worth $57. But this is not all. This cheese was shipped to the connecting point on the Central, 59 miles, at 20 cents per 100—$64. On a steel-track road three teams would have delivered it and returned in three days at $3.50 per day, or $31.50, saving $32.50, and, if loaded back at the same rate, the total saving would be $65. The market price of the cheese at eight cents per pound was $256, and the loss by reason of roads and rail charges was over one-third the price obtained."

Mr. O'Donnell calculates the cost of making a single steel-gutter track road at from $3,000 to $5,000 a mile.

Buy $1.00 worth Dobbins Floating-Borax Soap of your grocer. Send wrappers to Dobbins Soap M'f'g Co., Philadelphia, Pa. They will send you, free of charge, postage paid, a Worcester Pocket Dictionary, 298 pages, bound in cloth, profusely illustrated. Offer good until August 1st only.

Culture of Swamp Lands.

Swamp lands generally contain a large proportion of undecomposed vegetable matter, which, while it has much plant food in it, is not in an available or, we may say, in a digestible condition. This should be understood, and it may help to this end to explain somewhat. Ordinary wood, of course, is not a food for plants, but it decays or is burned, and the remains of it may be used as a fertilizer. The undecomposed matter in the swamp needs the addition of lime to cause it to decay, and then the muck is found to be a rich fertilizer. So that after the water is drained from a swamp the next thing to be done is to apply 50 or even 100 bushels of air-slaked fresh lime to the land, and, by plowing it in the Summer and leaving it for a time for the lime to act, then the next Spring oats may be sown or potatoes may be grown, and the next year oats again and grass seed sown. The grasses most suitable are red top, timothy, meadow fescue, and fowl meadow grass.

Destroying Skunks.

The skunk is one of the most useful of animals to the farmer, and should be protected rather than injured. It is certain that it is not an agreeable animal, but it is quiet and unobtrusive, and meddles with no one who does not attack it. It feeds on grubs, worms, beetles and mice, all of which do more damage to the crops than is thought. Cutworms and the white grubs are especial dainties to this useful animal, and if one will examine the corn rows early in the morning the traces of the skunk's good work will be easily seen, and, if duly appreciated, this humble—although unsavory—servant will be protected, as it deserves.

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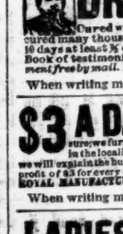

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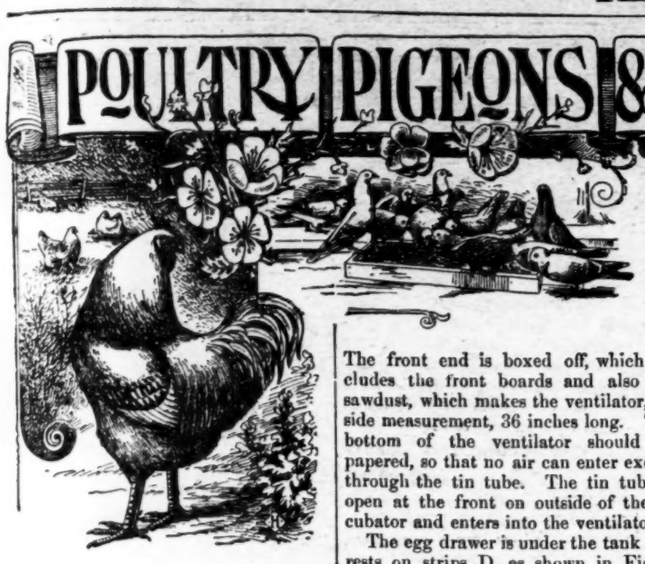

Cacklings.

The hen is an egg machine, and if you would run it successfully, you must learn how to run it properly.

Do not expect to get a dozen exhibition fowls out of a single setting of one dollar eggs. If you do you will be doomed to disappointment.

While ducks and geese do not seem subject to roup or cholera, they will often become lame and droopy if too closely confined in damp and close quarters.

Use the kerosene can about the nest and coop, to keep off the lice. There is nothing better than kerosene oil to keep the old and young stock free of such pests.

Eggs on the farm produce more cash between crops than anything else, and in that respect have done more to help farmers to tide over the interval from harvest to Spring than may be conceived of.

Hens like variety, and unless starved to it they will reject all kinds of food not suitable, and they are usually the better judges of what they want and need. Of grains, wheat is best for eggs, while corn is better for fattening birds for the table.

Under the ordinary way of caring for the young chickens on the farm it is unusual to grow up to maturity more than about 25 per cent. of the number hatched. Chickens are not to be raised profitably without the provision of suitable shelter from storms when young, and a perfectly safe roosting place at night where no intruder can molest. In doing so an eye to their future cleanliness should be had. These are necessary preliminaries. The thing to be done when the chicks begin to arrive is to make every one count. The little fellows must be intelligently fed, watered regularly, given exercise, looked after in case of sudden storms, kept clean and dry, mites and lice kept off, and then the young things will come along at a great rate.

THE WOODEN HEN.

Directions for Building a Cheap and Practical Incubator.

A plan of incubator that has given good results is the farm and garden incubator. To make this machine use boards one inch thick and 12 inches wide. Cut them 42 inches long for the floor and make 42 inches wide. The corner posts are 24 inches high, marked A, Fig. 1, and the two posts B, in front, are 12 inches high. The posts are made of 2x3 stuff and are nailed securely to the floor. The four corner posts are for the

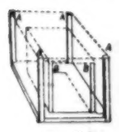

FIG. 1.

FIG. 5.

outer box, which, when finished, is four feet long and 44 inches wide, outside measurement. Including top and bottom, the machine is 26 inches high. Nail on your side boards and have the front end boards cover the end of the side boards. Tongue-and-groove boards should be used for the entire machine, except the floor, which should be of heavy boards.

The inner box is 40 inches long and 32 inches wide, outside measurement, and holds a tank 30 by 36 inches. The side boards are nailed to posts B, Fig. 1, and front boards of the outer box, and are fastened at the rear end by the rear boards being nailed to the ends of the side boards. Fasten the inner box to the floor with cleats. Fig. 2 shows the construction of the inner box quite clearly. A is the larger or outer box; B is the inner box; C are strips one

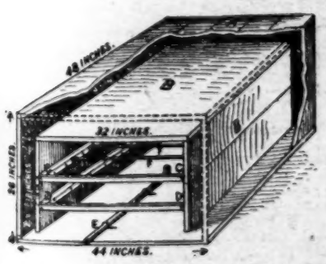

FIG. 2.

inch wide and one inch thick, nailed to the sides of the inner box. The strips C, with the iron rods, extend a little into the sides of the inner box, to assist in supporting the weight of the tank. The strips D are to hold the egg drawer. E is a tin tube, one and one-quarter inches in diameter and two feet long, placed in the front part of the ventilator to admit air. In this cut the sawdust is not shown in front.

The ventilator is in the bottom of the inner box and is under the egg drawer, five inches deep and 30 inches wide. The front end is boxed off, which includes the front boards and also the sawdust, which makes the ventilator, inside measurement, 36 inches long. The bottom of the ventilator should be papered, so that no air can enter except through the tin tube. The tin tube is open at the front on outside of the incubator and enters into the ventilator.

The egg drawer is under the tank and rests on strips D, as shown in Fig. 6. By outside measurement the egg drawer is four inches deep, 39 inches long and 30 inches wide. Fit in the drawer three movable trays, one and one-half inches deep. Nail strips an inch wide and five-eighths of an inch thick one inch apart the length of the egg drawer, but not under the boxed-off portion, for the

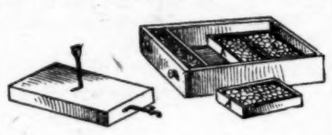

FIG. 4. FIG. 3.

bottom. Mortise ends of strips in the egg drawer so as to have the bottom smooth. Tack a piece of muslin to these strips (thin muslin is best) and also tack it on the inside of the drawers. Nail strips to the bottom of the trays one inch wide. They need not be mortised, but may be nailed on the bottom, one inch apart, and running lengthwise; tack muslin on the inside of the bottom of the trays the same as in egg drawer. The inside of the drawer is three inches deep. The sawdust in front of the egg drawer (the boxed portion) fits in boxed front of incubator, as shown in Fig. 3. A broad cap should be placed on the outside of the egg drawer to exclude the air. The tank, as shown in Fig. 4, is 30 by 36 inches and is seven inches deep. It is supported by strips C, Fig. 2. It fits close to the back boards of the inner box, and the front is inclosed by sliding boards, secured by one-inch

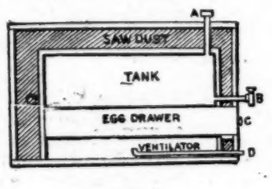

FIG. 6.

upright strips at each end of board. This leaves a small space in front of the sliding board to be filled with sawdust. The tube should be threaded and should extend through the sawdust in front for the faucet to be screwed to. The tube at the top is seven inches long and extends through the sawdust and also through the outer and inner box, as shown in Fig. 5. This is the incubator complete, and the opening into which the egg drawer enters when filled with eggs clearly shows the sawdust packing in front.

Fig. 6 is a sectional view of the incubator and shows the different parts. The boxed-off portion in front is filled with sawdust. The side boards of the inner box are joined on their front ends to the front boards of the outer box and are also nailed to the two short middle posts. The space between the boxes is filled with sawdust, chaff, oats, or finely-cut hay, packed solidly. Use sawdust when possible. In Fig. 6, A is tube on top, B the faucet in front, C the opening for the egg drawer, and D the tube to admit air into the ventilator. The ventilator tube should be placed as close to the bottom as possible. Use putty around the openings, where the tin tubes

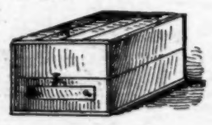

FIG. 7

enter the boxes, to keep out the air. Fig. 7 shows the incubator complete.

The capacity of this incubator is 240 eggs; 80 eggs to each drawer. Fill up the tank with boiling water to the bottom of the tube on top. It should be filled 48 hours before the eggs are placed in it, and the temperature at that time should be about 112 degrees. Do not open the drawers for at least six hours afterwards, as the eggs when first put in will cool the drawer and the heat will then be about 103 degrees, and it should be kept as near this temperature as possible throughout the entire period of incubation. Learn to manage it perfectly by running a few days without eggs. The incubator should be kept in a room where the temperature is about 60 degrees.

If any difficulty is experienced in raising and lowering the temperature the trays may be raised or lowered by putting small strips under them. Add a bucket of hot water twice a day, in the morning and again in the evening. The temperature will rise in five hours after the water has been put in.

Place the bulbs of the thermometers even with the top of the eggs with the upper end of the thermometers slightly raised, so that the mercury will rise in the tubes. The eggs should be turned once a day, and while turning them do not let them cool below 70 degrees. No moisture is needed the first week, a little the second and much the third. Moisture may be supplied with a small sponge dampened with hot water. During the second week one sponge in each tray is sufficient, and two sponges about the size of an egg in each tray will supply all the moisture needed during the third week. A small glass door may be placed in the front of the egg drawer through which to observe the thermometers. The position of the tray should be changed when the eggs are turned by placing the front tray in the rear.

Clover for Eggs.

Clover is an egg-producing material. It is rich in nitrogen and mineral matter, thus providing the hens with substances that are derived from it in forms most suitable for the purposes desired. Lime is an essential substance in the production of eggs, and there are some who use oyster shells for supplying the hens with lime, but clover contains lime in a soluble form and ready prepared for use. The various grains are deficient in lime, and when poultry receives no food but grain it is impossible for the hens to lay. When the needed elements are supplied and the hens lay regularly the carbonaceous matter is appropriated by the eggs; but if the hens do not lay they become fat, and remain in a condition which invites disease. Clover, by displacing grain, supplies the hens with substances which are lacking in the grain, and also provides bulky food and heat. When the hens have the use of a clover field they should lay a large number of eggs during the whole season. Clover hay tied in a bundle and suspended where hens can pick at it is good at this season, and clover-hay tea to dampen the ground or boiled grain will make the hen willing and energetic as a layer.

The Best Farm in the World."

Possibly there are many of the readers of THE AMERICAN FARMER who would be loth to admit that the best farm in the world can not be found in some part of the United States—and it is just possible that the particular spot of ground entitled to this eminent distinction would be variously designated according to the individual views of the particular reader. However, we may state, in all fairness, and certainly without desire to belittle our American agriculturists—even granting them the opportunity to defend themselves against the charge of not being the owners of the "best farm in the world"—that this title has for some time been held by what is known as the world-famed Longbeach Estate, and that it is located in New Zealand. Early in February the harvest season was at its full height at Longbeach, and the enterprising *Weekly Press*, published at Christ-church, sent a special representative with instructions to furnish the paper with a replete report of the interesting event, as disclosed by the operations upon this renowned estate. "Longbeach," says the *Press*, "is a busy place at almost all times of the year, and particularly so during the harvest. Plowing, sowing, and other operations occupy large numbers of men and horses, but they are spread over several months of the year, whereas the climate of the district brings the crops to maturity within a period of less than a month, and in that space of time the grain must be secured. Small farmers, contractors, and others—many from the immediate vicinity, others from almost all parts of Canterbury and some as far as Otago—find work at Longbeach during this busy time, and useful harvest hands flock thither, sure of a job. Employment at Longbeach has always been sought after, there being no better employer in New Zealand than Mr. John Grigg, the owner of the estate, and it can be said that no employer has better workers whether permanent or casual. Many under both categories have worked for him for a great number of seasons, and many snug farms and homes in various parts of the colony were founded by the earnings at Longbeach." The *Press* representative was impressed with the long line of McCormick harvesters and binders at work in the various paddocks, 'there being as many as seventy reapers and binders, and a corresponding number of drays, with upwards of 1,000 horses, and quite an army of men.' This season, it is said, the area in wheat, oats, and barley amounts to somewhere ab ut 7,000 acres, and the crops are as promising as have ever been seen on this fertile estate. The McCormick harvesters, as they came up side by side, following one after the other, cutting, tying, and delivering the big, heavy sheaves of grain with the most perfect regularity, and without the slightest trouble, or the least sign of hitch, presented a very pretty harvest picture. During the three or four days I was there, I saw them working in heavy, tangled crops, with a good deal of undergrowth, in heavy, bright, clean crops, and in crops of such nature as would most thoroughly test the strength and general capabilities of any machine. They did really good work in the heavy tangled crops, but when they got into a clean piece, the 256 acres of Tuscan, for instance, they delivered most neatly bound, even butted sheaves, leaving a beautifully clean, close stubble, with a very marked absence of litter. Each machine, drawn by a team of two horses only, cut, tied and delivered the heavy sheaves of grain with the greatest regularity, everything running smoothly and almost noiselessly, and the draft being so light that even in the heaviest and greenest of the crops the two horses were never distressed, blazing hot as the weather was." Just prior to the harvest season, Mr. Grigg bought a trainload of McCormick harvesters from Messrs. Morrow, Bassett & Co., of New Zealand, "and" continues the writer, "this house is to be congratulated on having so many of the McCormick machines holding the pride of place on this splendid estate, for if they give, as they are doing, unqualified satisfaction on Longbeach, there is no fear of anything approaching failure in any other direction. As an instance of the produce which annually goes off Longbeach, it may be stated that at Winslow, a small hamlet, and the nearest railway station to Longbeach, there is yearly paid a sum of £5,000 (about $25,000) for freight. Where the interest involved is of such magnitude every risk is, of course, reduced to a minimum. Men—as already mentioned—horses, and machinery must all be of the best type. The break-down of a single reaper and binder for a day might expose a hundred pounds' worth of grain to danger from the capricious elements Consequently no visitor should miss seeing the implements and machinery, for what finds favor at Longbeach may safely be taken as thoroughly reliable and efficient."

Beecham's pills for constipation 10¢ and 25¢. Get the book at your druggist's and go by it.

Annual sales more than 6,000,000 boxes.

THE APIARY.

Hummings.

It is reported from France that the fresh juice of the poppy plant applied to recent bee stings gives immediate relief and prevents inflammation.

Don't forget that some belated piece of ground may be profitably sown to buckwheat. The bees and the laying hens will divide the crop with profit to their owner.

The space required for an apiary is not necessarily large. One-half acre is sufficient for 200 colonies, and these should produce three to four tons of honey annually.

In California and the South, 200 to 500 pounds per colony is considered a fair average. In Pennsylvania there have been secured from 300 to 400 pounds from a single colony.

The demand for beeswax always exceeds the supply, and as no adequate substitute for it has ever been found, the demand is likely to continue. In Switzerland, the taxes are often paid with the wax sold.

It is not best to start an apiary where honey-producing plants do not grow naturally. The best of these are white clover, the linden tree, all fruit and berry plants and trees, mignonette, buckwheat, etc. These may be planted where any of them is lacking.

Mrs. L. C. Axtell: Women can be just as successful with bees as men, and that is one kind of work they receive just as much pay for as do men. When we take our honey to market a pound of honey that a woman gets from her bees brings just as much as her husband's or brother's honey.

The best kind of bees for practical results, and for the comfort of the bee-keeper, is the Italian. These bees are as gentle as house-flies. They are much more docile to handle than the black bees. They are larger, stronger, more active and industrious, and have a longer proboscis that enables them to secure the nectar from some flowers which are beyond the reach of the black bees. This of itself renders them much more profitable.

There are three kinds of bees—the mother or queen, the drones or males, and the workers. Each colony has but one queen, and she is larger than the other bees, the abdomen especially being longer and containing two ovaries. The workers are simply undeveloped females, and if by any chance the colony should lose its queen, the workers simply enlarge an egg-cell, and by extra care of the larva it contains, develop another queen. The drones do nothing for their living, and it is difficult to understand the use for so many. The queen once fertilized is fertile for life. The drones have no stings.

Mrs. M. Louisa Thomas urges all women to go into bee-raising. In regard to beginning the business, she recommends, first, a thorough course of reading, taking such books as Langstroth on Bee-Keeping, Quinby as revised by Root, Root's A B C of Bee Culture, as well as bee literature in general. She will need but one swarm to begin, and a few other hives to hold the surplus that may be expected. A bee vail, knife, smoker and lots of nerve are also required. It is unwise to invest too much money at first. The best hives are the movable comb ones, of which the Langstroth was the pioneer. These enable the bee-keeper to keep a constant watch over her colonies, and to know just their condition at all times.

FOUL BROOD.

Practical Suggestions as to Treatment.

BY PROF. A. J. COOK.

The late M. Quinby, who did so much for apiculture in days gone by, was the first to devise and practice an easy and practical remedy for foul brood. I say practical, but cannot say practical unless the person who makes use of the remedy understands the importance of the greatest care and exercises every precaution, as he proceeds with his work. The method is as follows: A box is placed above the hive, and the bees are drummed out into it just as we would proceed in case we were transferring bees from the old box hives. That is, after smoking the bees so that they are thoroughly subdued, we rap on the hive with stone or hammer for 10 or 15 minutes until all of the bees have gone into the box above. We now set this box in the coolest place at our command, and, if necessary, ventilate by use of screen. We surely must put the bees in the shade and see that they do not die of heat or ill-ventilation. The bees are left in this box for two or three days till they are just at the point of starvation, and then hived in a clean hive, which is certainly untainted with the disease, either on foundation or starters of the same. Unless the bees can gather honey at the time we must feed them honey or sugar sirup. It is well that this be warm when fed. The honey from the old hive may be extracted, and if boiled for some minutes may be diluted and fed to the bees. This is an excellent use to make of the honey, for the long boiling will injure its flavor and make it unfit for market, though it will in no ways injure it for the bees. The combs should also be melted up and made into wax. In this case it is desirable to apply a good deal of heat. I do not know that there is any evidence that wax made from combs containing foul brood has ever conveyed the disease to colonies of bees when made into foundation and used in the hive. Some bee-keepers, however, have suggested that it is dangerous to use such foundation, and where so much is at stake it is always wise to be on the safe side. Therefore, I suggest that in melting comb from such colonies into wax it may always be wisest to use as much heat as possible without injury to the wax, and to keep the material heated for some time. From my observation, I incline to the opinion that the waxy nature of the material makes less heat necessary to destroy all the germs. The hives also must either be destroyed or else kept for some minutes in boiling water. I should certainly wish to boil any hive at least 15 minutes before using it. It has been found by absolute experiment that the germs of some microbe diseases are certainly destroyed by exposure for a short time to sunlight. I presume very likely such exposure would make the use of hives from which the combs had all been taken safe, but so far as I know this has not been, as yet, actually demonstrated. I think I shall take measures soon to determine this point. In case this were true it would need to be practiced with very great caution. A little honey about the hive might attract some passing bee, and thus the germs carried to hives not previously diseased. A little wax about a hive will cause the bees to visit it. If glass was at hand large enough to cover the hives this would keep out the bees without excluding the fatal sunshine.

Winter Oats.

EDITOR AMERICAN FARMER: I live in Allegheny County, Pa., 10 miles south of Pittsburg, and can report very good success with a piece of four acres sown Aug. 21. Notwithstanding the very dry Fall and unfavorable Winter they came out this Spring with more green than the average wheat field, and at this date, May 8, they are about one foot high and cover the ground nicely, with prospects for a good crop. And, besides, there is the best catch of timothy that we have had for several years, on account, I think, of early sowing. This year will try to sow about the 10th. Where hay is made the principal farm crop Winter turf oats will be a better crop to seed down and get a grass catch than wheat, as they can be sown so much earlier. I will report yield on this piece when harvested.—A. B. GILFILLAN.

When to Use Plaster.

Plaster is so easily soluble that it may be wasted by sowing it when there is no growth of crop to take it up. So that it is usually sown when the clover or other crop is started to grow and able to make use of it. It is very quickly taken up by the plants, and soon gives them a bright green color and vigorous growth, so that if sown in rows with bare intervals between the rows are easily seen by the bright color of the verdure. The usual time of sowing it is early in May or late in April. The belief that if it be sown on the leaves wet with dew it will be taken into the leaves is a mistake. Plants never take in anything except air through the leaves; every kind of food other than the atmosphere is taken in by the roots.

Spreading Manure.

To spread the manure as it is drawn to the field is by far the best plan. The work is done, and is done in the most effective and useful way. But if the manure is left in heaps in the field to be spread afterward it leads to waste and injury. The rain will wash the soluble part of it into the soil, making the spots where the heaps lie too rich, and the rest of the land will be robbed of its share. It is a good plan and easy to take out the manure in the Winter, on the snow, in a sled, by which the draught is easy and the spreading is most convenient; in Summer a two-wheeled wagon is convenient.

Fertilizer fo Spring Wheat.

Superphosphate of lime is the most useful fertilizer for wheat, and should be applied immediately after the sowing and harrowed in with the seed; or if the seed is drilled it may be drilled with it, or if may be sown by hand broadcast. If the land be poor it may be well to add to 250 pounds of the superphosphate 50 or 75 pounds of nitrate of soda to the acre.

Whitewash in Summer.

When using whitewash apply it as hot as it can be done and have it thick, so as to cover the cracks as much as possible. Whitewash will destroy lice if put on the walls properly, but the thin, watery whitewash usually applied does but little service. In addition to its advantages in destroying disease it also makes the interior of the poultry house light and cheerful as well as destroying germs of disease. A gill of crude carbolic acid to every gallon of whitewash will render it more efficient as a disinfectant.

GOSPEL TRUTH.

Why Tell a Lie and Get Caught at It?

True Merit Always Stands the Test—A Few Instances to Prove it—Many More Where They Come From.

Testimonials are not much good in a horse trade.

You want to buy a horse to trot in three minutes. Trot the horse, that tells the story.

Every day we get letters saying, "If we only knew that No-To-Bac would cure the tobacco habit we would gladly give five times the price."

We often wonder whether such people really want a cure.

Why?

Simply because we absolutely sell No-To-Bac under a guarantee to cure, and at a price within the reach of all. Your own druggist guarantees it, so you don't have to take our word.

Over 20,000 druggists sell and guarantee No-To-Bac; over 1,000,000 boxes sold; over 300,000 cures; over 10,000 testimonial letters with requests to publish. Here are a few:

MINISTER SAVED AFTER 31 YEARS.

TYRONE, ARK., Sept. 16th, 1895.

Gentlemen: I must say that for 31 years I have been a perfect slave to tobacco, and can safely say, as a minister of the gospel, that two boxes of No-To-Bac has completely cured me of any desire for the poisonous weed, so that I feel like a man once more in life.

Yours truly,
Rev. J. A. PRESTON.

DRIVEN OUT OF TEXAS.

CLOVERDALE, IND., August 10th, 1895.

Gentlemen: One year ago while living in Henrietta, Texas, I became so nervous from the use of tobacco that it was a burden to me to keep still in one place any length of time.

I bought one box of your No-To-Bac and used it according to directions, and gained 15 pounds in two weeks. It cured me of the use of tobacco and also of nervousness, for which I am thankful.

Yours respectfully,
J. E. FRAZIER.

HAD TOBACCO HEART FAILURE.

JAMESTOWN, N. Y., September 25th, 1895.

Dear Sir: I have been cured of the use of tobacco by taking No-To-Bac. I never felt better in my life than right now. I am forty-nine years old and do not know what sickness means now. I used to be sick while using tobacco and had spells of heart failure, but it is all gone, thanks to No-To-Bac.

Very truly yours,
JAMES C. BATEMAN.

YEARS OF TOBACCO EATING.

GALENA, KANS., July 27, 1895.

Gentlemen: A year ago I sent to you for three boxes of No-To-Bac, and before two was used all desire for tobacco was gone, and since tobacco has not entered my mouth—and this, after not chewing, but *eating it for years*. I used over a pound a week. I can say to all who desire to quit tobacco permanently, give No-To-Bac an honest trial and you will succeed. Respectfully,

W. H. BOYCE.

Now, frankly, what more can we do or say? It is for you to act. Just try to-day; the right time is right now. If you don't like feeling better after the first week you can learn tobacco using over again. Get our booklet, "Don't Tobacco Spit and Smoke Your Life Away." Written guarantee, free sample, mailed for the asking. Address The Sterling Remedy Co., Chicago or New York.

The Growth of the Nitrogen Germ.

The so-called nitrogen germ grows and increases with marvelous rapidity in compost heaps, or in any soil in which there is a quantity of organic matter of a carbonaceous kind, with plenty of lime as well. The recent discovery of this germ and its function in the growth of plants is nothing more than the explanation of the effects of the old practice of making composts, one which has, unfortunately, gone out of use, to a large extent, since the introduction of fertilizers. But this discovery of it and its exceeding value to the farmer will doubtless soon cause the restoration of the good old practice, for by it this invaluable germ is cultivated to a surprising extent in the process of decomposing fresh manure in soil from a field, or from any other place in which clover or peas or any other leguminous plant has been grown. Thus composting in a field is a practice that will very soon be as familiar as it used to be years ago, since when the smell of the heap has become too offensive for our too sensitive nerves. But we must learn to bear it for its indispensable aid to the farmer.

Ground for Alfalfa.

R. A. Steele, Douglas County, Kan.: In selecting soil adapted to alfalfa I would say take good corn ground if it has a deep subsoil and is not too far to water. Avoid stone or clay subsoil. Sand is not objectionable, other conditions being favorable. There must be thorough tillage in preparing the ground; foul, weedy or grassy ground will not be satisfactory at any time. Therefore select and prepare the ground first.

Raising Sorghum.

A light, loamy soil is best adapted for producing a light-colored, sweet, amber sirup. Clover sod, manured if necessary, plowed the last of August and again in April; or, if there be no weeds, thoroughly worked with a disk and spring-tooth harrow, makes the best seedbed for sorghum cane. Potatoes may be followed by cane, and a good crop grown with a minimum of labor. Any good corn soil will support a crop of cane, but it needs to be in finer mechanical condition for cane than for the coarser-growing corn.

Quantity of Seed Oats.

The amount of seed of any crop depends on the character of the land. If the land be rich less seed is sown. Two bushels are enough for the best land, and three on poor soil, per acre.

Massachusetts is again struggling with the gypsy moth. As a last resort, recently 50 acres of timber was felled and burned up to annihilate the caterpillars.

MONEY MADE IN A MINUTE.

I have not made less than $16.00 any day while selling Centrifugal Ice Cream Freezers. Anyone about me make from $5 to $6 a day selling cream and from $7 to $10 selling freezers, as it is such a wonder, there is always a crowd wanting cream. You can freeze cream elegantly in one minute, and that astonishes people so they all want to taste it, and then many of them buy freezers, as the cream is smooth and perfectly frozen. Every freezer is guaranteed to freeze cream perfectly in one minute. Any one can sell ice cream and the freezer sells itself. My sister makes from $10 to $15 a day. W. H. Baird & Co., 140 S. Highland Ave., Station A, Pittsburg, Pa., will mail you full particulars free, so you can go to work and make lots of money anywhere, as with one freezer you can make a hundred gallons of cream a day, or if you wish, they will hire you on a salary.

When writing mention this paper.

IN ALL AMERICA
BUT TWO OTHER
AGRICULTURAL PAPERS
have credit for so large a circulation as is accorded
THE AMERICAN FARMER,
WASHINGTON, D. C.,
and the publishers of the American Newspaper Directory guarantee the accuracy of the circulation rating accorded to this paper by a reward of One Hundred Dollars, payable to the first person who successfully assails it.

"THE SOUTHLAND QUEEN."

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THE CHRISTIAN ENDEAVOR CONVENTION.

Washington, D. C., July 7, 1896.

ARE YOU COMING?

If So, We Will Furnish You a Free Ticket.

The National Convention of the Christian Endeavor Association will be held at Washington, D. C., July 7, 1896, and it is expected that several hundred thousand persons will be present.

Thousands of the readers of THE AMERICAN FARMER would like to improve this opportunity to visit our beautiful National Capital, but they are deterred by fear of the cost of the railroad ticket.

WE CAN HELP THEM TO THIS.

If they will get up clubs of yearly subscribers to THE AMERICAN FARMER we will furnish *them with first-class round-trip tickets from their homes to Washington and return.*

In this way they can get their transportation very easily. THE AMERICAN FARMER is so good and so cheap that it requires little effort to get any farmer to subscribe for it. It is not hard to convince him that he can and ought to pay 25 cents for a year's subscription to so excellent a paper.

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IN BLOCKS OF THREE.

THE AMERICAN FARMER expresses its appreciation of the work of its friends this year by seeking more and more to advance the interests of the farmer. That it may go into every farm household in the United States, we make the following offer for

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If you get two subscribers in addition to your own, three in all, we will send the three papers for

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Don't fail to improve the fine opportunity we offer you to get the Gleason Horse Book. This is admitted to be the best horse book ever written, and more than 100,000 copies have been sold at $3 apiece. We will send it to any address for a club of three subscribers at 25 cents each.

ELSEWHERE a plain farmer gives the Free Silver advocates something to think of by asking the question why the Government should not do as much for the more important wool producer as it is wanted it should do for the owners of silver mines?

THE FILLED CHEESE BILL.

The Filled Cheese Bill was promptly reported to the Senate by the Committee, and since then, under the able leadership of Senator Sherman, every effort has been made to secure its passage.

The opposition have been trying to encompass its defeat by loading it down with amendments.

Senator Mills, of Texas, offered an amendment imposing a tax of 5 per cent. on all manufacturers of iron, steel, copper, zinc, wool, cotton, etc. Senator Sherman appealed to him to withdraw it, but he declined.

Senator Allen, Neb., offered an amendment to impose a tax of $2 on each barrel of beer.

Senator Gray, Del., offered an amendment to tax tea 10 cents a pound.

All these amendments were voted down by decisive majorities.

Senator Sherman tried to have the bill made the special order for last Monday, but Senator Harris, Tenn., objected, and it had to take its place on the calendar. Its friends are confident that they will succeed in passing it before adjournment.

THE SUGAR BOUNTY.

The Supreme Court of the United States has decided that the Treasury must pay the money appropriated by Congress for sugar bounties for the year 1894, when the bounty law was repealed. Thus one part—unfortunately a small part—of the raid against our agricultural industries which followed the elections of 1894 has been defeated. The men who then came into power seemed actuated by a malignant desire to cripple our farmers in every possible way.

The Congress which passed the iniquitous Wilson Bill had the grace to continue the sugar bounty during the year, so as not to too flagrantly violate the promise made to the sugar growers in 1890. This was a very small sop indeed, for there was a virtual contract made by the Government that the bounty should be continued for 15 years. Acting under this the sugar growers—the cane growers in Louisiana and Texas, beet growers in Nebraska, Utah and California—made extensive additions to their plants, in order to carry out the desire of the people that our sugar should be grown on our own soil. The bounty was regularly paid until 1894, when the new Congress wrongly and unjustifiably repealed the bill, but appropriated $5,000,000 to pay bounties that year. The Comptroller of the Treasury—a bumptious fellow named Bowler—undertook to nullify the will of Congress, and refused to pay the money, on the ground that the appropriation was unconstitutional. This act was impudent and arrogant, but quite on a par with others of this Administration.

It caused the greatest hardship and distress in Louisiana—to which 90 per cent. of the appropriation went. The *Louisiana Planter* says:

> We perhaps do not exaggerate the situation when we assert that one-quarter of the sugar estates operating in 1892 and 18 3 have been closed out at the instance of their creditors by judicial or other sales; that hundreds of others have been maintained in operation only by the consent and aid of their creditors, and that but few have had sufficient available capital to follow an independent course.

The decision of the Supreme Court is that Congress had a right to appropriate the money, and that it must be paid.

CANAIGRE.

Canaigre is pronounced kan-a-greh. It means "sour cane."

The extract of canaigre resembles much gambier, but is superior to it for tanning purposes. It is, in fact, the best tanning material known, giving a clearer, brighter orange color than any other, tans quicker, colors deeper, and makes softer, more pliable, durable, and impervious leather, and can be used to improve hides which have been poorly tanned by other materials.

The world uses about $10,000,000 worth of gambier every year, of which we import about $1,500,000 worth. It comes in free of duty.

"ALL work and no play makes Jack a dull boy." Give the boys all the fun you reasonably can, and it will pay. Make them work hard part of the time, but vary this with as much pleasure as you can bring into their lives. Let them know that they can have more real enjoyment on the farm than in any other walk of life, and they will stay with you.

EVERY European country is actively legislating for the protection of its own farmers. Ours is the only civilized Nation that legislates against its own farmers for the benefit of foreigners.

THE MATTER OF TOBACCO.

The outlook for raisers of fine tobacco is very good indeed. The troubles in Cuba are not likely to end soon, unless the United States interferes in behalf of the patriots. The President seems very adverse to this, and as the Constitution clothes him with high prerogatives in diplomatic matters he is likely to have his own way, since Congress will adjourn in a few days, and leave him entirely free until next December. This will settle matters for this year. In the meanwhile the world must have an immense amount of fine tobacco. The stock in Cuba must be very much reduced, for the insurrection has now gone on over a year—in fact, has extended over two crop seasons, during which the patriots have had control of most of the best tobacco land. Gen. Weyler is trying to boycott the tobacco-users of the world into supporting Spain by prohibiting the export of tobacco. All this is to the direct benefit of the finer grades of American tobacco, which must be made to largely take the place of that obtained from Cuba. We have always believed that this country, and especially the Southern portions—Georgia, Florida, Alabama, Louisiana, and Texas—is capable of raising quite as good tobacco as can be produced in Cuba. The success achieved in many places in the South, where the growers have attacked the problem with faith and intelligence, gives solid ground for this hope. The Cuban difficulties make an opportunity to fully test this question, and we feel sure that within a few years American tobacco will have pretty fully replaced in our factories not only that obtained from Cuba, but also from Sumatra.

How important this will be the Treasury statistics as to the importations of tobacco show. The reduction of duty on tobacco by the Wilson Iniquity gave a great impetus to the importation of tobacco, nearly doubling the amount that we bought abroad. For the year ending June 30, 1895, the valuation of the tobacco brought in was:

Leaf, suitable for cigar wrappers..	$7,219,877
Other leaf	7,523,843
Cigars, cigarets, cheroots, etc. . .	2,080,233
Snuff, etc.	62,659
	$14,888,612

Could these millions of dollars be turned into the pockets of our own tobacco-growers it would be substantial increase to our agricultural wealth. Now is the time to make an effort to do it.

WOOL IMPORTS.

The "Report of Foreign Commerce and Navigation for the Year Ended June 30, 1895," just issued by the United States Treasury Department, gives the importations of wool for the past five years as follows:

	Unmanufactured.	Manufactured.	Total.
1891.....	$18,231,372	$41,060,080	$59,291,452
1892.....	19,688,106	35,565,879	55,253,987
1893.....	21,064,180	38,048,515	59,112,695
1894.....	6,107,438	19,439,372	25,546,810
1895.....	25,556,421	36,543,084	62,099,505

The figures for the year ended June 30, 1895, represent only the beginning of the Wilson Act, which did not go into operation as to manufactured goods until Jan. 1, 1895, so that but half a year's business shows. Yet, though our commercial depression was severe, the importations ran up to over $5,000,000 a month.

Can any one believe that the prosperity of this country could be promoted during such times as we have been having by sending out over $5,000,000 a month for wool and its manufactures?

At a time when the whole people were complaining of lack of employment and money, charlatans proposed to restore good times, increase employment, and expand the currency by sending out of the country fully a million and a half dollars a week (for the Treasury valuations are too low) to employ foreign farmers and foreign workingmen to raise the wool and make the cloth that our people need.

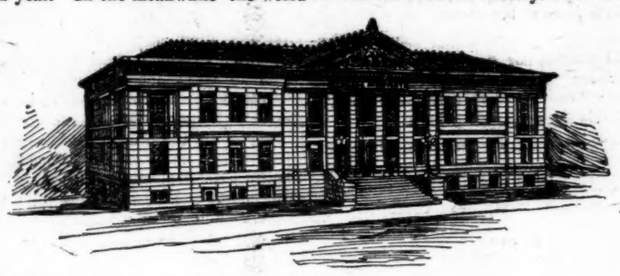
Did any one ever know such economic quackery! The men who proposed and brought it about were in politics just what the vulgar, loud-mouthed mountebank on the street corners is in medicine.

THE AMERICAN FARMER gives more practical, progressive, up-to-date matter for less money than any other farming journal published.

THE AMERICAN UNIVERSITY.

The First of the Buildings to be Erected.

All American citizens are watching with interest the progress of the work of erecting at Washington, D. C., a university that will properly represent the greatness and enlightenment of our glorious country. The Methodist Episcopal Church has set out to do this work, and what the Methodists lay out to do they are pretty sure to accomplish. They have already raised $1,000,000, and a design has been accepted for the first building. We give it below. It is called the Hall of History.



It is the first of the series to be erected, because history is to be one of the foundation departments of the whole institution. History, in the usual sense of the word, will be studied here, and also many special lines of history, enabling the young specialist in almost any field of investigation to acquaint himself with past movements and progress, and so prepare himself for original investigation from the standpoint of the present. The history of philosophy, of the sciences, of the professions, are only illustrations.

The general style of architecture in the new building is that to be used with variations in all the buildings. It is the classic. This building is of the Doric order. It is to be 176 feet long, the central part 95 feet in depth, and the end parts 70 feet. It is two and a half stories high, the lower, or half story, being sufficiently above ground—about seven feet—to give good light and ventilation. The steps and the base course of 18 inches next to the ground are to be of granite. The basement story is to be of rock-faced white marble. The two upper stories are to be of the same kind of white marble, but tool dressed.

The contracts have been let, and work will soon begin.

AT the beginning of this month the gold reserve in the Treasury had fallen to $106,932,621. What else can we expect when we are sending out more than $300,000,000 a year in gold for agricultural products which we should raise on our own soil? Stop the outgo of this great river of gold at once. Turn it upon our own fields and farms.

As in everything new, many farmers are discouraged about silos, and will not fill them this year. The reasons are that the work comes at the most inconvenient season, and they have had ill-success in the past, owing to the way they filled their silos. Many in Illinois used the big Southern corn, which did not keep well. All the same, the silo is a most valuable farm adjunct, but to be made so requires judgment and labor. With these, it will furnish a high grade of forage at a cost of from $1 to $1.20 a ton.

THE *Rural Californian* is coming over to our way of thinking:

> Why not produce more of the soil products that Uncle Sam imports, rather than petition him to pay a bounty on what farm crops we export? It is a simple proposition requiring no new legislation to bring it about. Take the item of sugar, of which we import upwards of $150,000,000 worth per year, affords a good opportunity to keep a snug little sum of money circulating near home by extending the area planted to the sugar beet.

PERSONAL.

The French Academy of Medicine has elected Dr. Stiles, of the Bureau of Animal Industry of Washington, to its membership. Dr. Stiles is only 28 years old, and is the first upon whom this honor has been conferred at so early an age.

Andrew S. Fuller, one of the leading and most scientific horticulturists in the country, died May 4, after a short illness with neuralgia of the stomach, at his home at Ridgewood, Bergen County, N. J. He was a native of Utica, N. Y., born in 1828, and after passing his boyhood on a farm in the State of New York removed to Milwaukee, Wis., and learned the business of making greenhouses. He became famous for his collection of plants and was induced to go East to take charge of some nurseries at Flushing, L. I. He soon left this work and began the cultivation of the grape, which left us his fame. In the course of his experiments with this fruit he originated several now well-known and valuable varieties.

Col. John S. Cunningham, of North Carolina, is said to be the largest grower of tobacco in the world. He is an active politician, and says while the people of his State are for free silver, they want the coinage to represent the actual value of the metal. They are not in favor of any 16 to 1 ratio, but the real commercial ratio.

The True Foot.

We find in a German work on surveying, by Jacob Koebel, published about 1550, the following: "To find the length of a road in the right and lawful way, and according to scientific usage, you shall do as follows: Stand at the door of a church on a Sunday, and bid 16 men to stop, tall ones and small ones, as they happen to pass out when the service is finished; then make them put their left feet one behind the other, and the length thus obtained shall be a right and lawful rood to measure and survey the land with, and the 16th part of it shall be a right and lawful foot."—*Electric Power.*

NEW PUBLICATIONS.

ANNUAL SOUVENIR BOOK, 1896. BY CLAPP & Co., Mills Building, New York.

Clapp and Co., who are leading commission merchants and brokers in the whole United States, render invaluable services to business by weekly bulletins which give summaries of the last reliable figures relating to all manner of business, and particularly in regard to prices, production and prospects. These bulletins are grouped every year into one volume, along with much other valuable matter, and it makes a splendid business history of the year. The edition for 1895 has many improvements over its predecessors.

Notes.

Colonel John J. Garnett, of the Confederate States Artillery, has contributed to the "Lee of Virginia" series now running in *Frank Leslie's Popular Monthly*, a paper on "The Seven Days' Campaign near Richmond." It appears in the June number, and describes the second battle of Manassas, the first invasion of Maryland, and the battle of Antietam. The article is handsomely illustrated with battle scenes and portraits of Gen. Lee, Stonewall Jackson, Gen. Johnston and others. Published at New York. Price 25 cents.

Secretaries Olney and Carlisle recently consented, for the first time since they held office, to be photographed seated at their desks. The pictures were taken at the request of *The Ladies' Home Journal*, and will be used to illustrate ex-President Harrison's article describing the workings of the State Department in the July number of that magazine.

The American Journal of Sociology for May contains articles on "Recent Legislation in Restraint of Trade," "The German Inner Mission," "Profit Sharing in the United States," "The Michigan System of Child-saving," "The Data of Sociology," etc. Published at Chicago. Price 35 cents, or $2 a year.

The June number of *Harper's Magazine* opens with "A Visit to Athens," a vivid descriptive sketch by the Rt. Rev. William Croswell Doane. The illustrations, by Guy Rose, indicate picturesquely the antique setting in which the modern city reposes. John Kendrick Bangs is the author of "A Rebellious Heroine," a short serial with a new and characteristically humorous theme, the first part of which is given in this number, with illustrations by W. T. Smedley. "The Greatest Painter of Modern Germany" is the title of a paper on Adolf Menzel by Dr. Charles Waldstein, illustrated with examples of the artist's work, several of which have not been reproduced hitherto. E. D. T. Chambers contributes an enthusiastic paper on the delights of fishing, under the title "The Ouananiche and its Canadian Environment."

One of the eccentric characters known to New York half a century ago was McDonald Clarke, "the Mad Poet." An illustrated article by William Sidney Hillyer, in the May issue of the *Monthly Illustrator and Home and Country*, New York, recalls his vagaries, and many of his poems accompany the article. The table of contents of this number is varied and the illustrations are grand. Issued at 66–68 Center Street, New York. Subscription $2 a year.

The *Electric Power* for May is a historical number with interesting illustrated articles on Mothers of Eminent Electricians, by Max Loewenthal; The Middle Ages of Electric Lighting, by Ralph W. Pope; Some Interesting Features of Electric Engineering. Other articles of special interest are: Electrical Stage Effects, with illustrations; a Systematic Treatise on Electrical Measurements, and the Editorials on the Roentgen rays, Advantages of Electric Lighting, Etheric Lighting, etc. 27 Thames Street, New York. Price 25 cents.

Catalogs.

The Pitts Agricultural Works, Buffalo, N. Y., Steam road-rollers.

The Hampshire Down Flock Book, Vol. VII. Published by the Hampshire Down Sheep Breeders' Association, Salisbury, England. Price 10s. 6d.

A very handsome and elaborate illustrated catalogue of Buggies, Surries, Phaetons, Farm Wagons, Road Carts, Harness, Saddles, and Horse Goods, showing a great variety of styles and shapes, has just been issued for 1896 by the well-known Alliance Carriage Co., of Cincinnati, O. This enterprising company prints the prices in plain figures (factory prices) in their catalogue and send goods anywhere subject to examination. Any horse owner can have a catalogue free if they mention this paper.

The Alliance Bicycle Co., Cincinnati, Ohio, has just published a large and valuable Catalogue of Bicycles and sundries, showing wheels from $25 up to $100. Send for it, and mention the name of this paper when you write.

Morrisville Nurseries, Morrisville, Pa., Catalog of trees, plants, shrubs, vines, etc.

"Livingston's True Blue Seeds." By A. W. Livingston's Sons, Columbus, O.

THE MARKETS.

Produce.

NEW YORK, June 1.—Flour—Unsettled and lower to sell, following the weakness in wheat; prices are nominal: Minnesota patents, 3.35a4.00; do. bakers', 2.65a3.05; Winter patents, 3.65a3.75; do. straights, 3.35a3.40.

Hay—Easy; shipping, 70a75; good to choice, 90a95.

Hops—Dull; State, common to choice, 1894 crop, 2½a4½; 1895 crop, 3a8; Pacific Coast, 1894 crop, 2½a4; 1895 crop, 3a7.

Hides—Firm; Galveston, 20 to 25 pounds, 11; Buenos Ayres, dry, 16; Texas, dry, 24 to 30 pounds, 8; California, 21 to 25 pounds, 12½.

Pork—Dull; old to new mess, 8.25a9.25; short clear, 9.00a10.50; family, 10 00a10 25.

Butter—Firm; Western dairy, 8a11; do. creamery, 11a15½; Elgins, 15½; imitation creamery, 12; State dairy, 10a15; do. creamery, 11a15½.

Cheese—Steady; large, 5½a6½; small, 4a7½; part skims, 2a4½; full skims, 1½a2.

Eggs—Steady; State and Pennsylvania, 12a12½.

Tallow—Steady; city, 3a3½; country, 2½a3½.

NEW YORK, June 1.—Wheat—Options, No. 2 red, opened stronger on bullish European news, but turned weak and declined sharply under local unloading and large Spring wheat receipts; July, 64½a65½; September, 64½a64-13-16; December, 66a66-11-16.

Corn—Receipts, 98,600 bushels; sales, 180 000 bushels. Options, No. 2, dull and weaker; July, 34½a34½; September, 35½.

Oats—Receipts, 358 200 bushels; exports, 8,500 bushels; sales, 25,000 bushels futures, 392,000 bushels spot. Spot active but weak: No. 2, 22½a 22¾; No. 3, 21½; No. 2, delivered, 23½a23½; No. 2 white, 24½; No. 3 white, 23½; track white, 23a27. Options dull and weak with the other markets and closed 1 net low; July 22½a22¾, closed 22¾.

The visible supply of grain Saturday, May 30, as compiled by the New York Produce Exchange, is as follows: Wheat, 50,340,000 bushels, a decrease of 953,000 bushels. Corn, 8,905,000 bushels; increase, 910,000 bushels. Oats, 8,303,000 bushels; increase, 688,000 bushels. Rye, 1,434,000 bushels; decrease, 92,000 bushels. Barley, 857,000 bushels; decrease, 84,000 bushels.

Wool.

BOSTON, May 30.—The wool market continues dull, inactive and without feature. Manufacturers are making few inquiries, and these are made at lower prices.

For Ohio and Pennsylvania fleeces the trade is exceedingly dull. Some XX is firmly held while there are good lots sold at 17 to 18. We quote in this market Ohio X 16½a17; Ohio XX, 17; Ohio XX and above, 17a19, and No. 1, 17a18.

For Michigan wools we note a quiet demand for unwashed wools with a fair supply. For washed X the market is quoted at 15a15½.

For combing and delaine wools there is a very little demand. Unwashed combings are lower and sales at lower figures. Washed staple wools are very quiet. We quote this week Ohio delaine, 30; Michigan, 18a29; unwashed quarter-blood combings, 15a16; and three-eights at 15a16; washed combings we quote at 29 for No. 1, and 21a22 for No. 2.

For Texas wools there is a very quiet demand, with some wool arriving. We quote clean 28c for fine and 25a27 for medium Fall wools. In Spring wools, fine, 12 months' growth, clean, 21a26, and for six to eight months' growth, 20a21; medium of year's growth is worth 20a21, and six to eight months' growth, 20a20.

Oregon wools are very dull and sell in a small way at unchanged prices. Prices are generally reported weak. We quote prices clean, as follows: Eastern No. 1, 29a30; No. 2, 22a30; Valley No. 1, [illegible], and No. 2, [illegible].

California wools are in light demand. Scoured quotations are as follows: 30a32 for northern free 12 months and 28a30 for eight months; 30a31 for southern 12 months and 25a28 for six and eight months. Fall wools are quoted at 25a26 for free and 23a25 for defective.

Pulled wools are very quiet, with the best of the demand for Bs. Prices are weak. We quote on a scoured basis as follows: Fine A, 33a35; A supers, 3-a31; B supers, 25a27; C supers, 22a23; fine combing, 32a33; western extra, 31a32.

Territory wools are moved very slowly. The market is lower and 30c is now the common quotation. Much wool, however, is still held above this price but the tendency is lower. We quote scoured basis Montana fine, 32a33; fine medium, 30; medium, 28a30; Wyoming and Utah fine, 31a32; fine medium, 30; medium, 28a29.

We quote the selling prices of the market for leading descriptions as follows:

	Cents.
Ohio and Pennsylvania No. 1 fleece.....	17a18½
Ohio and Pennsylvania X.....	16a 18
Ohio and Pennsylvania XX.....	17a17½
Ohio and Pennsylvania XX and above..	17a 18
Michigan X.....	15a15½
Michigan No. 1.....	17 a18
Combing No. 1.....	20 a..
Combing No. 2.....	20 a..
Kentucky and Ind. ¼-blood combing.....	15 a16
Kentucky and Ind. ½-blood combing.....	15 a16
Missouri ½-blood combing.....	15 a16
Delaine, Ohio fine.....	20 a..
Delaine, Michigan fine.....	18 a20
Montana fine	8 a11
Montana medium.....	9 a13
Wyoming fine.....	7 a12
Wyoming medium.....	8 a14
Kansas and Nebraska fine.....	8 a10
Kansas and Nebraska medium.....	8 a11
Georgia.....	17a18½
Texas spring medium, 12 mos.....	9a12½
Texas spring fine, 12 mos.....	9 a11
Texas spring fine, 6 to 8 mos	8 a10
Texas spring medium, 6 to 8 mos.....	8 a11
Texas fall.....	7 a 8
Kentucky ¼-blood clothing.....	14 a15
Kentucky ½-blood clothing.....	14 a15
Unwashed fine Ohio and Michigan	12 a13
Unmerchantable Ohio.....	13 a14
Unmerchantable Michigan.....	12 a13
Lambs super pulled.....	13 a14
Super pulled.....	10 a15
Extra pulled.....	10 a17
Western super.....	8 a14
California spring.....	9 a13
California fall.....	8 a10
Oregon east.....	8 a12
Oregon fancy.....	10 a12
Oregon fine valley	9 a13
Oregon medium valley.....	12 a14
Montevideo.....	14 a15
Australian, Port Philip.....	20 a26
" Adelaide.....	19 a20
New Zealand clothing.....	20 a21
" " cross-bred fine	22 a24
Cape.....	14 a17
Carpet wools, Aleppo.....	9 a9½
" " Bagdad.....	14 a16
" " China.....	8 a13
" " Cordova	11 a12
" " Donskoi.....	14 a15½
" " Donskoi combing	15 a17
" " East India.....	9 a11
" " Georgian.....	9 a13
" " Khorassan	10 a16
" " Valparaiso.....	10 a11

NEW YORK, May 30.—The market is quiet. The new parcels have not been sampled up as yet and put in shape to make them generally available. Even pulled wools, which ordinarily help run up the line of sales somewhat, appear very slow at the moment, with the exception of one lot of fair volume, which was moved, and values are understood to be fairly well sustained for staple and desirable grades. Business in the aggregate shows some gain over the week previous, but otherwise the general market has presented very much former average features on the surface. The woolen goods market has not been lifted from the stagnation of previous weeks, with curtailment in the production still more or less pronounced. As long as these conditions continue a feature wool handlers look for no marked expansion in the demand.

PHILADELPHIA, May 30.—The market is dull and inactive, with the tone lower generally. Nevertheless some of the carefully observant local operators are suggesting signs of a more hopeful character, among which they mention letters from a number of manufacturers asking for information, and some running into town to see what there is on hand and look it over. If they are in need of wool and the quality suits them they try and make terms with the dealer. The indifference of local dealers toward the early clips is reflected in comparatively small arrivals, but there are numerous lots located at interior points which can be reached readily enough should the demand make it necessary.

Grain.

CHICAGO, June 1.—The following shows the range of prices:

	Open.	High.	Low.	Close
WHEAT—				
July.....	58½	58½	56	56½
September.....	58½	58½	56½	56⅝
CORN—				
July.....	27½	28½	27½	27½
September.....	29	29½	28½	28⅝
OATS—				
July.....	18	18	17½	17⅝
September.....	18½	18½	17½	18
PORK—				
July.....	6.90	6.90	6.82	6.85
September.....	7.05	7.12	7.00	7.02
LARD—				
July.....	4.15	4.15	4.10	4.12
September	4.27	4.32	4.25	4.27
RIBS—				
July.....	3.67	3.70	3.62	3.65
September	3.82	3.82	3.77	3.80

Cotton.

NEW YORK, June 1.—The following shows the range of prices:

	Op'g.	High.	Low.	Close.
July.....	7.67	7.71	7.67	7.69
August.....	7.67	7.72	7.67	7.70
September.....	7.11	7.12	7.04	7.04
October.....	7.07	7.08	6.99	6.99

At the outset there was an advance of 3a5 points on local covering, following a better class of cable news than had been looked for. Later there was a weaker feeling, under reports of rain in Texas, where needed, although these were not confirmed. The market closed steady at a net advance of five points to a net decline of five points.

Live Stock Market.

NEW YORK, June 1.—Beeves—native steers inferior to choice, 3.90a4.60; common to good stillers, 3.70a4.37½; stags and oxen, 3.50a4.10; bulls, 2.85a3.25; dry cows, 2 15a2.90.

Calves opened active and higher; closed quiet and weak; veals, poor to choice, 3.00a5.00.

Sheep and Lambs active; sheep and yearlings firm; lambs higher; sheep, poor to prime, 3.00a 4.50; yearlings, common to fair, 4 75a5 50; Southern lambs, common to prime, 6.00a7.50.

Hogs firm, at 3.60a4.10

CHICAGO, June 1.—Cattle—Arrivals were about as expected, and met with fair demand from the start, some grades showing a slight advance. Choice 1,500 pound steers were most in favor, some extra smooth steers of such weight sold up to 4.30, but most of the good to choice steers sold at 3.80a4.10, and plain lots around 3.70. Cows and heifers went at firm prices, and veal calves sold about steady, the best around 5 00. Texans went at full, steady prices, grass steers chiefly at 2 75a3.30, and some fed cattle, extra quality, around 3.85.

Hogs—The supply was far in excess to the demands of the trade, and sales were generally at 10a20decline. Choice 330 pound hogs sold at 3.60. Choice medium butcher pigs sold at 3.10, and fancy light sorts around 3.50, only a few extra quality reaching 3.25. Rough lots sold at 2.50, quality reaching 3.25. Rough lots sold at 2.50, quality reaching 3.25. Rough lots sold at 2.50,

THE GARDEN.

Pluckings.

He who would fine melons grow,
With care and skill must tend each row,
Must watch the insects, watch the blight,
Nor let the weeds appear in sight;
Must every inch of ground contest
Against each foe and wily pest.
Must work them early, work them late,
Nor deem the time and care too great;
And then your care and labor past,
Success will crown you at the last.

Complaint has been made in some sections that the use of fish as a fertilizer exhausts the soil. This is due to the fact the soil also needs potash in time, under such circumstances.

Should slugs or other pests appear, frequently sprinkle overhead with a slight dressing of equal parts soot, wood ashes, and quicklime. This kills the slugs, keeps off the worms, and prevents the growth of weeds.

A dressing of wood ashes, charcoal dust, soot, and lime after a crop of early potatoes forms a capital preparation for Spring parsley. Sow in rows from 15 inches to 18 inches apart, and thin the plants, so soon as large enough, to nine inches apart in the rows.

Manures applied in the fresh form are eminently helpful to vegetation. They are so for the reason, first, that their constituents have not been lost; second, that when applied as a mulch they more effectively prevent the escape of moisture, and, third, that when reduced in the soil, rather than lying in heaps, they unlock fertility in their decay, and so make it accessible to plants.

One advantage of cucumbers is that they can be planted later than most crops which return a good cash profit. A piece of rich early land can be planted any time from the middle of June to the middle of July, and will mature a good crop of pickles. Use plenty of seed to allow for cutworms and plant the hills four feet apart each way. When the plants begin to run, thin them out to about four in the hill. They are cultivated like corn until the vines interfere. On new land but little hand hoeing will be needed.

Thayer's Berry Bulletin for June, 1896.

Fruits and vegetables are composed mostly of water.

No component part of same is so plentiful, yet so difficult to supply in proper quantity.

The fruit grower should, then, know how to guard against seasons of drouth and preserve the natural moisture of the soil.

This can be done in two ways.

First—By irrigation, which is practicable only in certain favored localities by ditches and canals and by various pumping devices, pipes and drains, necessarily limited in extent, and then only with considerable expense.

Success by these methods requires about 1,000 barrels of water per acre for each application.

Second—By retaining moisture already in the soil by mulching. This may be practiced by all.

Well prepared ground receives sufficient moisture in Spring to fully mature the largest crop.

Tons of moisture from every acre are escaping daily in the growing season.

The best and most practical way to preserve this moisture and place it just where it is most available for plant use is by frequent shallow cultivation, forming a fine earth mulch.

This applies to gardens and all hoed crops. Where soil cannot all be cultivated, as with small fruits, then use manure, leaves, straw, clover, marsh hay, or any material to shade the ground and retard evaporation.

With coarse mulch close around fruit plants and a fine earth mulch between the rows large crops may be carried safely through severe drouths. Commence at once and continue until products are mature.

The new strawberry plant should not be allowed to bear fruit the first season.

Pick off all fruit stems as soon as they appear.

Three methods of training the strawberry are in use. The hill system, where all runners are removed, the narrow row, where only part of new runners are allowed to form plants, and the full matted row, where plants are allowed to fill all the space, excepting a narrow path between rows.

All have advocates and all have special merits, depending on soil, climate, variety and grower.

The full matted row is most used, being easiest to manage.

Guard against too many plants in small space. They consume moisture, suffer from drouth and produce small berries. Each plant should have from four to six inches square space in which to grow and mature its fruits.

When new canes of the raspberries and blackberries are 15 or 18 inches high, pinch off the top about three inches.

This will cause side branches to grow, making well formed bushes, and greatly increase the bearing surface of the canes. —M. A. THAYER, Sparta, Wis.

What to Do with Strawberry Runners.

The runners of the strawberry plant should not be permitted to grow until after the fruiting is over. Then one may be suffered to grow from each plant, and it should be set or held in the desired place to become rooted where it is wanted, either in the row between the old plants or in such a place that it may be moved and planted elsewhere. It is a good plan to root the runners in small strawboard boxes without bottoms and set in the soil. When the plants have made roots they are taken up in the boxes and planted in the new bed without any check. All other runners should be cut off as they start, or they will weaken the old plants. These should be fruited only one year.

A POTATO CELEBRATION.

A Marvellous Event to Be Celebrated in July of This Year.

An anniversary will occur next July which comparatively few people will even so much as know of; but, all the same, it should be celebrated the world over, especially in the European countries, although some notice should be taken of it in this country.

It was in 1596 that Sir Walter Raleigh returned to England from America, and carried with him potatoes and tobacco. They were planted and grown quite extensively the next year, 1597, and that was the beginning of a great agricultural industry which, according to competent statisticians, now furnishes one-sixth of all the food consumed by the human race. In the beginning only the rich and the well-to-do could afford to indulge in the new and then considered delicious food, for it was in those days a luxury.

Even as late as the 17th century potatoes were used almost exclusively by the nobles and those in authority, and were what the poorer class considered expensive, namely, two shillings per pound.

Taking into consideration the vast differences in the value of money between that period and the present time, that sum would be equivalent to perhaps four times as much as at the present day. It is on record that thousands of people visited the botanical gardens of Gerard, which are famous the world over, and situated at Holborn, England, to see the potato plant, together with the tobacco, in bloom.

It seems to many, especially those interested in agriculture, that it would be appropriate and essential to demonstrate to the community that the growers of this article are interested in the welfare of the product. While, for instance, we do not raise more than one-sixth as many potatoes as Germany alone, there is not, nevertheless, a farmer in the land who does not grow them to a more or less extent, while there is hardly an individual in the country who does not eat this most excellent food daily.

It is to be hoped that the Farmers' National Congress, an organization composed of farmers from every State in the Union, will take up the question of this anniversary and take steps according to their feelings toward this indispensable product—a product eaten by every man, woman and child in the world—to advance its cultivation and as a food.—JOHN G. CALLICE.

Nitrogen for Beans.

As regards the special needs of beans as to fertilizers, it is a common belief and expression that "any soil is good enough for beans," and while this, like other similar expressions, is very much open to doubt, yet we know something now about this class of plants which leads us to believe that there is some truth in the adage so far as the nitrogen of the fertilizers or in the soil is concerned. The two expressions referred to were from different sources, and while from one we have the belief that a soil cannot be too rich for lima beans, and a slight dressing of nitrate of soda will produce an enormous yield, from the other comes the statement that fertilizers rich in potash and phosphoric acid are preferred, and those are to be avoided which contain much nitrogen; in fact, there does not seem to be any contradiction between these two opinions; one believing in a slight dressing of nitrate, and the other avoiding much nitrogen. The same idea seems to be expressed in the apparently different words.

Cultivating Potatoes.

Potatoes having been properly planted, their cultivation should begin soon after. In two or three days after planting the ground should be worked over with a good weeder or sharp-toothed harrow, so as to destroy the tiny weed plants that are sprouting just beneath the surface, and also to retain the fine mulch of soil which is so desirable in potato culture. This same operation should be repeated at intervals of a few days, until the potatoes can be seen growing in the row. In case of very dry weather the weeder should be followed once or twice with a roller, to firm the soil over the sprouting tubers and to prevent the rapid evaporation of moisture from the soil. All this may seem like a great deal of work, but it is easily and rapidly performed, and is necessary to insure best results.

Poor Land for Sweet Potatoes.

Sweet potatoes do not do well on bottom land of any kind. If you put them on rolling land of any kind, white clay, or even red clay, they will do better. They go all to vines on bottoms. If you can get a rolling piece of ground, or side-hill, and run rows with the hill, you will be surprised at the difference in yield. Sweet potatoes do not want a rich soil either; this makes them go to tops. Many think sand is the only soil for them; this, too, is a mistake. They will grow where many other crops won't, on poor side-hills, if only once well started. If very dry, have the ground well worked up, ridge, and set plants with water, putting water at the roots only, then pull in the earth.

Onions may be kept in a dry, cool place. In a damp cellar they will sprout and grow, no matter if the temperature there is near the freezing point.

Hay Growing in Mississippi.

The eighth report of the Mississippi Experiment Station says:

"In 1888 the Station commenced a series of experiments with grasses and forage plants with a view to determining

1. What plants will restore fertility to the soil most rapidly, and at the same time give fair returns in hay or pasture.

2. What plants will make the most permanent meadows.

3. What plants will make the best permanent pastures, especially for Winter grazing.

4. What hay-producing plants are best for temporary use.

Since the commencement of the work, 586 species have been grown, many of them on soils widely different in character. Sowings have been made at different seasons and under different conditions; seeds of the more promising sorts have been distributed to planters in different parts of the State, and special attention has been given to the fertilizing and Winter grazing values of each species.

When this work was commenced almost no hay was grown in the State, except what was used by planters for home consumption, and thousands of tons were shipped into the State annually. The census report for 1880 gives the yield of hay in Mississippi as being only .83 tons per acre, against an average yield of 1.14 tons per acre for the whole United States. In 1893 the yield of hay for this State had doubled, being then 1.66 tons per acre against an average of 1.32 tons for the whole country. In 1895 the average yield in Mississippi had increased to 1.95 tons, against an average of 1.06 tons for the whole of the United States, or 84 per cent. above the average, and 114 per cent. above the average yield in the northern and central States of the Mississippi Valley."

Liming Land for Wheat.

It is a common practice of good farmers to apply 40 bushels of air-slaked lime to the acre when wheat is sown and clover is to be sown in the Spring. Lime is most excellent for the clover, insuring a good growth on only ordinarily fair land. Thus the lime is valuable, and if its good effects are supplemented by manure the land will steadily improve under this management. The lime is applied on the plowed land, which is then harrowed when the wheat is sown, and the land is again harrowed, or only one harrowing may be given, and the lime and wheat be harrowed in together. It is usual to plow in a liberal quantity of manure at the first plowing and before the lime is spread. The lime does no harm to the manure under this method. In case this has not been done in the Fall it may be done in early Spring.

A Note of Warning.

"I desire to say that we have tried all the new forage plants excepting Sacaline and Sand Vetch. Other varieties of vetch have been tried and probably this one does not differ materially, so that it may be included in what is said below. None of these plants are useful for Wisconsin, unless one is pleased to grow novelties for the pleasure of seeing something new and odd but which does not give half the returns that common plants already grown do. Kafir corn will ripen generally in the latitude of Madison, but it does not give nearly so good returns as plain Indian corn. Teosinte is a very good plant in South Carolina and Louisiana, but it is a variety of sorghum which will not ripen far north. Sacaline is a plant through which farmers and others caught by the attractive catalog advertisements lost thousands of dollars last year, and for which they have not received, and probably never will receive, a single cent's return."—*Prof. W. A. Henry, of Wisconsin.*

The Field.

There has been considerable discussion lately as to the value of Kafir corn for flour. Kansas millers have been experimenting with it. The product is somewhat lacking in whiteness, but it is said to make good biscuit, muffins and griddle cakes. Kafir flour is now on the market in a limited way, and the rapid extension of the cultivation of this non-saccharine sorghum may eventually exert considerable influence in the flour trade.

Except upon the Pacific coast and in the mountain country, the tendency in irrigation continues to be more and more toward separate watering outfits for each farm. The statement made last Fall by Secretary Coburn applies to thousands of farms in other sections, even to the Atlantic coast, quite as much as to Kansas: "The man who controls his own plant, who relies on the resources existing within the boundaries of his own farm and within the crown of his own hat, will be the one most envied."

Experiments have been made and are being continued in Germany in the cultivation of the nitrogen bacteria for the inoculation of the soil. The process is based on the production of the bacteria by cultivating leguminous plants, as lucern, clover, peas, lupins, etc., and taking from the soil in which these have been grown a small quantity of soil to be used as a fertilizer by sowing the germs just as the brewer or the baker sows the yeast germs in his process.

MR. HOOD'S JERSEY SALE.

A Remarkable Lot of Animals Offered at Auction—the Prices Paid and the Purchasers.

It will be remembered that about a year ago THE AMERICAN FARMER published an elaborate descriptive article of the Jersey farm and its famous herd, the property of Mr. C. I. Hood of Lowell, Mass. Recently Mr. Hood decided to sell the surplus stock at auction. The herd ranges from 225 to 250 in number and has been founded upon the best stock the world could afford, or money buy.

The sale included 41 animals, and was largely attended from all parts of the Union. The guests, some 600 in number, were entertained by Mr. Hood in the most hospitable manner so that no one went away hungry from his magnificent farm-home.

The list below gives a description of the animals, the prices they brought and to whom sold:

Tonnage, large and handsome bull, a son of Diploma. Has 50 per cent. of the blood of Merry Maiden, champion sweepstakes cow at the World's Fair; Tonnage Girl, his daughter, won first prize at the New England fair last year. Sold for $100 to Asa B. Gardiner of Baltimore, and will be taken to the Filston Farm, Glencoe, Md.

Bisson's Fancy Wax, four-year-old cow, and a daughter of the great Bisson's Landseer, sold for $75 to Henry Edwards of West Andover.

Centipede, light fawn cow of good descent. Sold for $90 to John J. Conway of Manchester, N. H.

Alba's Golden Bow, show bull which won first prize as best yearling bull at N. E. Fair, 1895, sold for $100 to T. S. Hathaway of New Bedford. Will be placed on the Rockland Farm.

Lady Brassy, five-year-old cow. Sold for $60 to Freeman B. Shedd of Lowell.

Peggy Scituate, handsome young cow, descended from Jersey Bell of Scituate. Sold for $70 to F. B. Shedd.

Chromo 1st of Hood Farm, two years old, son of Chromo, and grandson of Diploma, sold for $95 to Mr. Perrin of Manchester.

Monte Sano Belle, record 15 pounds 15½ ounces, superb Southern bred cow, sold for $125 to Joseph Laurence of New York, to be added to a fine herd.

Ninian B., gray cow nine years old. Sold to D. L. Page of Lowell for $40.

Inbred Duke of Hood Farm, bull two years old, sold for $55 to F. C. Silk of Tewksbury.

Genie Pogis, cow five years old. Sold for $50 to D. L. Page.

Cornelia of Brondale, a cow of good family. Sold for $50 to Wm. J. Hogg of Worcester for the Hillside Farm of Boylston.

Appeal 1st of Hood Farm, bull of great individuality. Son of Appeal, sold for $50 to A. D. Wallace of Ipswich.

Oonan's Virginia, a promising heifer, sold for $85 to J. P. Lewis of Boston.

King Signal, son of King of Belair, sold for $75 to H. K. White of Concord, N. H.

Hunt the Slipper, cow five years old, sold for $55 to W. J. Hogg.

Vilesfie, a fine heifer, sold for $95 to A. B. Fox, Fartherland Farm, Byfield, Mass.

Trump of Hood Farm, a young bull, tracing six times to Combination, sold for $95 to A. B. Fox.

Nicomis 2d, an inbred Combination cow, sold for $60 to D. L. Page.

Belle Rioter Scituate, cow, five years old, sold for $30 to D. L. Page.

Maquilla 6th, a daughter of a cow having a record of 21 lbs. 1 oz. when two years ten months old, sold for $140 to Harry Cady of Lowell. The bidding was active.

Brown Bessie's Son 6th of H. F., sold for $75 to John J. Creevy of New York.

Brown Bessie 14th, sold for $80 to Geo. P. Carpenter of Williamstown, Mass., father of Supt. Carpenter of the farm.

Mint 5th of H. F., sold for $36 to Geo. P. Carpenter.

Brown Bessie 6th of H. F., sold for $70 to Susan Williams of Centreville, Md.

Comba's Son, a young bull, started low at $15 but sold for $75 to E. C. Jordan of Portland, Me.

Crusta of Hood Farm, a heifer of great promise, tracing four times to Combination. Sold for $125 to Susan Williams.

Goldie of Hood Farm, daughter of Little Goldie, sold for $70 to George Williams of Pawtucket, R. I.

Appella 1st of Hood Farm, won first prize in heifer class at New England fair last year. Sold for $90 to George Cheney of Taunton.

Dutchess of Hood Farm, sold for $100 to E. C. Jordan.

Pedro's Fancy 2d of Hood Farm, sold for $105 to E. C. Jordan.

Silvery, a fine young cow, sold for $60 to C. C. Day of Kennebunkport, Me.

Norma Pogis, sold for $30 to A. B. Simpson of Manchester, N. H.

Appeal 6th of Hood Farm, solid fawn bull, 4 months old, sold for $25 to E. C. Jordan.

Appeal 3d of Hood Farm, dark fawn bull, 6 months old, sold for $25 to Henry Busby of Lowell.

Pedro's Fancy 5th of Hood Farm, 1 year old, good heifer, sold for $75 to E. C. Jordan.

Appeal 4th of Hood Farm, young bull, 5 months old, sold for $30 to Chas. W. Stone of Andover, N. H.

Pogis 2d of Hood Farm, bull, 4 months old, sold for $50 to Geo. Cheney of Taunton.

Appella 2d of Hood Farm, heifer 4½ months old, sold for $45 to D. A. Hurd of North Berwick, Me.

Bull calf, six months old, to be named by purchaser, sold for $45 to C. K. Littlefield of Kennebunk, Me.

Appeal 5th of Hood Farm; bull calf, 4 months old, sold for $30 to W. S. Proctor of Littleton.

FILLED CHEESE.

The Text of the Bill as It Passed the House of Representatives.

The Filled Cheese Bill, as it passed the House, may be briefly summarized as follows. Sections one and two define cheese and filled cheese in these words:

For the purposes of this act, the word "cheese" shall be understood to mean the food product known as cheese, and which is made from milk or cream, and without the addition of butter, or any animal, vegetable or other oils or fats foreign to such milk, or cream, with or without additional coloring matter; and all substances made of milk or skimmed milk, with the admixture of butter, animal oils or fats, vegetable or any other oils, or compounds foreign to such milk, and made in imitation or semblance of cheese, shall be known and designated as filled cheese.

Section three imposes special annual taxes as follows: On manufacturers, for each and every factory, $400; on wholesale dealers, $250; on retail dealers, $12.

Section four provides that persons who manufacture filled cheese without having paid the foregoing special tax shall be fined not less than $400 or more than $3,000; wholesale dealers, $250 to $1,000; and retail dealers, $40 to $500.

Section five relates to the keeping of books and accounts by manufacturers, and giving bonds of not less than $5,000. Section six prescribes that only wooden boxes shall be used for packing filled cheese, and there must be marked on the top and bottom and in four places, equi-distant from each other, on the side, and the cheese must also be marked in a similar manner; retailers must sell only from original packages, and must inclose every piece sold in wooden or paper packages, which must also be suitably marked or branded. Violations of these provisions subject the offender to a fine for each offense of not more than $500, or imprisonment not exceeding one year.

Section seven requires a proper sign to be conspicuously displayed in all places where filled cheese is sold, and section eight requires the manufacturer to affix to every package a label certifying that all requirements of law have been complied with, and cautioning every person not to use the package a second time.

Section nine imposes a tax of one cent per pound on all filled cheese, which must be paid by affixing coupon stamps; section 10 provides for assessing and collecting taxes that have been avoided; section 11 imposes a tax of eight cents per pound on all imported filled cheese, and sections 12, 13 and 14 impose penalties for non-compliance with sundry provisions of the law.

Then follows provisions authorizing scientific tests to determine whether any substances used in the manufacture of filled cheese are deleterious to health, the final determination on this point resting with the Surgeon-Generals of the Army and Navy and the Secretary of Agriculture.

The act is to go into effect on the 90th day after its passage.

General Order to Inspectors.

U. S. DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., May 13, 1896.

It is the desire of this Department that the influence of all employees should be used, so far as is warranted by the law, for the purpose of securing the humane treatment of animals in transportation and in the stock yards. Depriving animals of food and drink for unusual periods, and beating and worrying them, are practices calculated to make the animals feverish and their meat unwholesome, and should be discountenanced and prevented. You will, therefore, give such instructions to your subordinates as will insure careful treatment of any animals which they may be called upon to handle, and as will also lead them to use their influence for the same end with all other persons with whom they come in contact.

You will please make an investigation of the matter in which animals are transported and handled by the railroad companies and stock yards which come under your observation, and make such suggestions as may occur to you, with a view to improving the service and protecting animals from undue suffering or cruelty. Injured animals which are evidently suffering severe pain should be promptly reported to the humane societies, unless the owner or the stock yard company properly cares for them within a reasonable time.

(Signed) CHAS. W. DABNEY, JR.,
Acting Secretary.

Southdown Breeders.

The gold medal offered by the American Southdown Breeders' Association has been awarded to Geo. McKerrow, Sussex, Wis., who was closely followed by John Jackson & Son, Abingdon, Ont., Can., and F. W. Barrett, Wadsworth, N. Y. W. E. Spicer, Harvard, Neb., made an excellent start in the competition, but was compelled to discontinue his exhibits before the Fair season was over.

An Iron Silo.

There is nothing wrong about an iron silo, and one may be built for less money than a timber one, and it will be far more durable and cheaper in the end. The round silo will be best for this material. It should be made of 2 by 4 scantling set up on a round sill made of 2 by 6 plank, spiked together, and cut in sections to be fitted so that a circle is made. Or the silo may be made eight sided equally well, as the sheets of iron or steel used for roofing will bind the whole solidly together if the joints are broken at every lap. The inside and outside are covered the same way, air-proof paper being laid under the sheets. The lining and outside sheetings are finally painted with the red oxide of iron paint. The roof may be made of the same material, and by keeping it painted the silo will be as durable as stone.

BACKACHE

A Very Significant Indication of Organic Derangement.

THE back, "the mainspring of woman's organism," quickly calls attention to trouble by aching. It tells, with other symptoms, such as nervousness, headache, pains in loins, and weight in lower part of body, blues, and "all gone" feeling, that nature requires assistance, and at once. Lydia E. Pinkham's Vegetable Compound for twenty years has been the one and only effective remedy in such cases. It speedily removes the cause and effectually restores the organs to a healthy and normal condition. Mrs. Pinkham cheerfully answers all letters from ailing women who require advice, without charge. Thousands of cases like this are recorded.

"I have taken one-half dozen bottles of Lydia E. Pinkham's Vegetable Compound, and it has relieved me from all pain. I cannot tell you the agony I endured for years; pains in my back (Oh, the backache was dreadful!) and bearing-down pains in the abdomen, extending down into my limbs; headache and nausea, and very painful menstruations. I had grown very thin, a mere shadow of my former self. Now I am without a single pain and am gaining in flesh rapidly. I owe it all to Mrs. Pinkham's Compound."—MATTIE GLENN, 1561 Dudley St., Cincinnati, O.

Lydia E. Pinkham Med. Co., Lynn, Mass.

A Plain Farmer's View.

EDITOR AMERICAN FARMER: I will give you a skeleton, hoping you will clothe it with sinews and muscles, and start it to graze over the hills and plains of the United States.

Wool is a greater necessity for the comfort and health of the people of the United States than silver; and as the raw wool has depreciated more in value to the producers than silver bullion has, then why not the Government take our raw wool and manufacture it into clothing free as well as to manufacture silver bullion free?

Cannot you get a move made to have an amendment to the silver bill to manufacture the wool free, also?

If the Government is going into the paternal business, wool growers should not be left out in the cold.—JOHN W. CLARKE, Arlington, Ind.

Subsoiling.

There is not so much advantage in subsoiling land as will pay for the work. Generally the subsoil is actually more porous than the top soil, as one may find in digging post-holes for a fence. Sometimes in old land the pressure of the plow sole has hardened the ground so that it may need breaking by the use of a second plow, a sort of bull tongue, by which this crust is loosened. This is a great help and does not cost much, and the effect will be quite as good as that of the use of a costly machine to do this simple work. It should follow right after the ordinary plow.

California Barley.

The bulk of exported barley goes from San Francisco to England, but last year 300,000 bushels went to the Sandwich Islands and a little to Central America and Australia. Ten years ago very little barley was exported. Imports of barley were 10 to 15 million bushels annually under a duty of 10 cents per bushel, but dropped to about 800,000 bushels in 1894 under the 30 cents tariff, coming mostly from Ontario and Quebec. Under the duty of 30 per cent. advalorem which took effect Aug. 28, 1894, imports for last fiscal year were over 2,000,000 bushels.

HOW A. W. JAMES MADE MONEY.

I saw that Dish Washers were advertised by several firms. I sent and got one and sold a good many of my neighbors and made some money, but I saw that Bert Dawson, Columbus, Ohio, had just gotten out a new Dish Washer called the Queen which was the latest patented machine in the market and had all the improvements, by which a person could wash dishes, vegetables, silverware and clothing in one minute. I got the agency and sold five the first day and my profits were $15, and I shall easily make $60 before the month is out, as everybody wants the newest and best Dish Washer there is going, and it is easy to sell what people want. These hard times anyone who wants to make a little money honestly can do as I have done. Mr. Dawson referred me to the Cardington Bank, Mt. Gilead Bank and Quaker City Bank, as I knew he was perfectly responsible. Anyone can get circulars about the Queen by writing to Mr. Dawson as above.

A. W. James.

When writing mention this paper.

A WATCH GIVEN AWAY TO EVERYBODY.

A Premium Offer that Breaks the Record.

READ CAREFULLY OUR OFFER BELOW.

Every Word of the Statement is Absolutely True, Though Hard to Believe.

Think of It! A Stem-Wind and Stem-Set Watch Guaranteed a Perfect Time-keeper that Will Not Cost a Cent.

We have secured for our friends one of the most serviceable watches ever made, which is a stem-winder and stem-setter having all the modern appliances known to the watchmaker's art. The case is **solid gilt or silcoid**, according to choice. It is two inches in diameter and three-quarters of an inch thick. The cut shows the correct shape. Remember this is no toy nor sun dial, but an ordinary modern watch which will last for years, and one which any person may be proud to carry in his vest pocket. It is guaranteed by the manufacturer, and if not found exactly as represented, this guarantee is assumed by us. A watch like this a generation ago would have cost $20, even if it could have been produced, but the fact is it contains appliances unknown at that time.

In addition to the watch we send in every instance a neat and serviceable chain, so that the outfit will be ready to put on and wear as soon as received.

HOW TO GET IT.

We do not sell this watch without the paper, and no one can secure one of these splendid timepieces by itself.

We will send this watch by mail to any person who will send us a

CLUB OF ONLY TEN YEARLY SUBSCRIBERS

to THE AMERICAN FARMER.

Understand that you pay nothing for the watch, but send us ten names and addresses of subscribers to THE AMERICAN FARMER with 25 cents for each subscriber, who will receive the paper for one year, postpaid, and we will send you the above-described watch and chain, postpaid, to your address absolutely free of charge.

No one, therefore, need be without a watch equal for keeping time to any in the neighborhood a single day longer. Indeed, it will not take a day for anyone to get up this small club of only ten subscribers at 25 cents each for the best family newspaper in the United States.

Try it, and see for yourself how easy it is.

If anyone is unwilling to spare even the little time required to get up the club, we will send the watch and chain with THE AMERICAN FARMER for one year to any address for $1.75.

REMEMBER

that we do not care to dispose of the watch with single subscribers, but our object in this unparalleled offer is to give the watch free to our friends who will raise the clubs of ten, because we want THE AMERICAN FARMER to go for the coming year into every farmer's home in the country. To accomplish this we are willing to make the sacrifice which this offer entails.

DO NOT LOSE TIME,

but attend to this matter the very next day after you receive this offer.

THE AMERICAN FARMER, Washington, D. C.

Scott's Emulsion.

is for men and women who are weak, when they should be strong; for babies and children who are thin, when they should be fat; for all who get no nourishment from their food. Poor blood is starved blood. Consumption and Scrofula never come without this starvation. And nothing is better for starved blood than cod-liver oil. Scott's Emulsion is cod-liver oil with the fish-fat taste taken out.

50c. and $1.00 at all druggists.

Song.

Go, lovely rose,
Tell her that wastes her time and me,
That now she knows,
When I resemble her to thee
How sweet and fair she seems to be.

Tell her that's young,
And shuns to have her graces spied
That hadst thou sprung
In deserts where no men abide,
Thou must have uncommended died.

Small is the worth
Of beauty from the light retired
Bid her come forth,
Suffer herself to be desired,
And not blush so to be admired.

Then die, that she
In common fate of all things rare
May read in thee,—
How small a part of time they share,
Who are so wondrous sweet and fair!

—*Edmund Waller.*

Woman's Work.

An old poem written some 10 years ago, picturing the duties of women, has been going the rounds of the press lately:

Here lies a poor woman who always was tired,
She lived in a house where help was not hired.
Her last words on earth were: "Dear friends, I am going
To where there's no cooking, no washing, nor sewing;
But everything there is exact to my wishes,
For where they don't eat, there's no washing up dishes.
I'll be where loud anthems will always be ringing;
But having no voice, I'll get quit of the singing.
Don't mourn for me now—don't mourn for me never,
I'm going to do nothing for ever and ever."

The *American* suggests another versification of woman's duties, more in accord with modern times

Here lies a poor woman who always was busy;
She lived under pressure that rendered her dizzy.
She belonged to ten clubs, and read Browning by sight,
Showed at luncheons and teas, and would vote if she might;
She served on school boards with courage and zeal,
She golfed and she bodaked, and rode on a wheel.
She read Tolstoi and Ibsen, knew microbes by name,
Approved of Delsarte, was a "Daughter" and "Dame";
Her children went in for the top education,
Her husband went seaward for nervous prostration.
One day on her tablets she found an hour free—
The shock was too great, and she died instantly.

ABOUT WOMEN.

ABIGAIL DODGE IS SERIOUSLY ill.

* * *

AMELIE RIVES CHANLER Troubetsky is her name now and her pen name is the Princess Trobetskoy.

* * *

A BIT OF FAIRY STORY ACcount is that Queen Margherita has strawberries every day of the year and has them served on a golden plate.

* * *

THE EMPRESS OF RUSSIA HAS forbidden the ladies of her court to smoke in her presence or to come before her with the odor of smoke about their garments.

* * *

KATE FIELD, THE WELL-known newspaper woman, is dead. She has done a great deal of clever writing and lecturing. Her lectures on Mormonism and Dickens, her newspaper, *Kate Field's Washington*, and several booklets and essays gained some popularity and fame for her, but none of her works was ever very profitable.

How to Use Denim.

A visit to the art department of a large dry goods store will convince anyone that many useful and beautiful articles may be made of denim. The worker is not confined to the old fashioned blue and brown, but almost every color and shade can be found, and the prices range from 15 cents to 35 cents per yard, according to quality.

A handsome portierre was made of blue denim. There were two widths of the light, joined in a flat seam with a border of dark, 16 inches wide, across one side and end. Over this, part on the light and part on the dark, and following the seam, was couched a deep lattice work border done with asiatic twisted embroidery silk in dull yellow. Tassels of blue, white, and yellow silk finished the edge on one side and across the bottom. The lining was tan-colored satteen.

A pillow seen recently was made of brown denim, using the light side. A design of poppies and leaves, worked with black, was placed in the center, and the edges were finished with a ruffle of the denim. A table cover of old red figured denim was made for a small table. No embroidery was needed, and a red fringe, costing 10 cents a yard, was used around the edges.

A table scarf of light-blue has a border across both ends of dark 10 inches wide. Over the dark is smoothly stretched a band of drawn work eight inches wide, done on heavy ecru butcher's linen, with threads pulled to form squares eight inches each way, alternating with squares of the plain. The open squares are filled with threads crossing straight or diagonally, with a small darned wheel in the center where the threads cross. This band was couched on with several rows of blue asiatic rope silk, and a geometrical figure worked in the center of each plain square with the same. The scarf was lined with satteen, and finished across the ends with tassels made of blue silk and the linen threads left from the drawn work.

A large cushion is pretty covered with pale-green denim, embroidered with a design of corn leaves, worked with green asiatic filo silk. A deep ruffle of the denim scalloped with green roman floss finishes the edges.

Those who have no time for embroidery, will find the figured denims very handsome and suitable for a great variety of purposes. It makes beautiful table cloths, cushion covers, portierres and curtains. Old lounges and upholstered chairs are made to look like new, by removing the old covers and substituting new ones of this material.—MARY.

FASHION'S FANCIES.

Fans and parasols are both in season again.

Colored handkerchiefs, especially those of grass linen, are muchly discussed and sometimes carried, but the white handkerchief remains the daintiest and prettiest of all. A colored handkerchief always seems not quite so "nice" as a white one.

Neck trimmings are very important nowadays—woe to the stout woman with a short neck! Puritan collars—straight bands of stiff white linen; bows under the ears; "great big" bows at the back of the collar; flaring ruffles surmounting a high band; double ruches; frills of all sorts; and bons of ribbon, feathers, lace, chiffon, or net. Besides these there are a host of collars—yokes, rather, ruffled over the shoulders—and these are of grass linen, embroidery, lace, or lace and ribbon.

A neat gingham gown of blue and tan, striped in fine lines, is made as shown in the cut, with a plain gored skirt and a waist plain except for the three box pleats in front and the rows of three little buttons that head the pleats. The sleeves are simple affairs of the gingham with three buttons on the cuff. The belt and collar are of dark-blue gros-grain ribbon.

Another pretty gingham frock is made with pointed lapels of the gingham, trimmed along the edges with narrow Swiss insertion. The vest piece is of fine white lawn, trimmed thrice across with strips of insertion set in with rolled edges and fine stitches, to make the front perfectly dainty. A belt and collar of the pink ribbon completes the finery. The skirt is plain and gored with the insertion put on about six inches above the

edge. The style is one that, because of the narrow, pointed lapels, is especially becoming to stout girls, though the slender ones can make full puffed fronts to theirs and the results will be equally becoming.

Here and There.

Try a whisk-broom to aid in sprinkling the clothes.

"They do say" that it is English to salt your strawberries.

"Pulled bread," which is said to be valuable for people who are troubled with indigestion or dyspepsia, is made, according to Mrs. Rorer's recipte, as follows: Trim the crust from a loaf of French or Vienna bread and divide the loaf lengthwise into halves first, then quarters and eighths. The bread should be pulled apart rather than cut, though a bread knife may be used to start each length. Lay the pieces on a piece of brown paper and dry out in the warming-oven for several hours; then brown slightly in a warmer oven. If greater haste is required, the bread may be put at once, after being pulled, into a moderately hot oven, where with a little watching the drying and browning process will be much more quickly accomplished.

Blankets washed in cold water with soft soap and borax are kept as fresh and soft as new. Dissolve a tablespoonful of borax in a pint of soft soap and make a thick suds. Soak the blankets in this for several hours. Wash them in cold water and rinse them three or four times in cold water. Hang them up to dry without much wringing.

Borax always has a tendency to whiten clothes and will not injure them if used moderately.

Kerosene oil will help to clean rust from kitchen things, and pans and kettles that have become blackened by the fire can be brightened somewhat by rubbing them with paper that has been dipped in kerosene.

Dark calico should be ironed on the wrong side with a moderately hot iron.

Dotted Swiss curtains tied back with pale-green ribbons are very dainty for a green-and-white room.

A pretty hat and one easily trimmed is of panama straw, tan in color. It is turned up in the back with a bow of white tulle and a single tall, nodding American Beauty rose, with its leafy stem, is the trimming. For a girl to whom it is becoming the hat only needs a band of velvet ribbon around the crown, with no trimming whatever for the front; but to most girls a wreath of small leaves or a twist of the tulle round the crown will be more becoming. It is a simple hat but very stylish and graceful.

Now is also the time that the country girl anoints herself nightly with buttermilk to remove the freckles, sunburn, and tan that have accumulated during the day. On the morrow she will go forth again to the fields and the sun will kiss her cheek and brow and wrists, but the buttermilk will be plenty at home, and throughout the Summer the warfare of the maid, the sun and the buttermilk will be continued.

An excellent remedy for a cough is made by slicing two lemons thin and adding to them 10 cents' worth of whole flaxseed, 10 cents' worth of licorice root, one gill of water, and a little sugar. Boil until quite thick, and strain.

Flaxseed is one of the best remedies for a cold on the lungs. Such a cold should never be neglected, for it may speedily result in some more serious ailment. A hot bath should be immediately taken, followed by a cool sponging; the latter will prevent taking more cold. Use flaxseed, either ground or whole, pour over it boiling water, let it steep, and drain off the liquor, thin it sufficiently so that it can be used for a drink. To every bowlful add the juice of one lemon and sugar to make it palatable. Drink freely of this whenever thirsty.—*The American.*

HOME TABLE.

When?

One morning in the garden bed,
The onion and the carrot said
Unto the parsley group:
"Oh, when shall we three meet again,
In thunder, lightning, hail or rain?"
"Alas?" replied, in tones of pain,
The parsley: "In the soup!"
—*From Drake's Magazine.*

EDITOR FARMHOUSE: Here are three cake recipes which I have tried with very good success and can recommend to the sisters:

PORK CAKE.

One pound pork; 1 pound raisins; 3 cups molasses; 2½ cups sugar; 1 pint boiling water, thrown over the pork; 1 tablespoon soda; 1 cup dried apples, soaked over night in water and boiled in a cup of molasses; 1 teaspoonful allspice, cloves, cinnamon, etc.; flour enough to make it stiff. This is enough to make three good sized loaves. It will keep a long time.

SURPRISE CHEAP CAKE.

One egg; 1 cup sugar; 1 large tablespoonful butter; 1 cup water; 2 cups flour; 2 teaspoonfuls baking powder; 1 teaspoonful flavoring.

LAYER CAKE.

One egg; 1 cup sugar; 1 tablespoonful butter; 1 cup sweet milk; 2 teaspoonfuls baking powder; 2 cups flour. Any kind of filling.—Miss L. D. L.

Some Banana Recipes.

Bananas are excellent served with whipped cream. Pare and slice thin half a dozen bananas, lay them in a pretty dish, and sprinkle with half a cup of powdered sugar and four tablespoonfuls of orange juice or sherry wine. Let them stand in a cold place an hour or more, and serve with whipped cream.

A banana sauce for puddings or fritters is made thus: Peel four large ripe bananas and rub them through a coarse sieve into a saucepan; add to them a pinch of salt and half a cup of granulated sugar. Place the pan over the fire and cook until at the boiling point; then add four tablespoonfuls of sherry wine or orange juice, and serve at once.

Banana cake makes a nice luncheon or supper sweet. Put in a saucepan four tablespoonfuls of sugar, four of sherry wine, and the same amount of orange juice; place over fire. Peel and slice thin six bananas and add to the liquid. Cook them five minutes. Meanwhile, make a sponge or cup cake and bake it. When the cake is partly cool split it, and spread half of the prepared bananas over the lower part; place the top of the cake on the fruit, and put the remaining bananas over the top. This cake should be eaten warm. —*N. Y. Sun.*

In all of these recipes, orange juice may be used instead of the sherry.

WOMAN'S WISDOM.

Spring.

Written for the Farmhouse by Mrs. ELLA W. WALLACE, Pope Valley, Cal.

Once more the gently sloping hills
Are covered o'er with verdure green,
And tree and flower and laughing rills
Seem to rejoice that Spring is queen.

There is a charm, oh, laughing Spring!
In swelling bud, and rosy bloom,
And gentle airs, and sweet perfume,
While song birds make the echoes ring.

Oh, waving grass and leafy tree,
Oh, flowers bright and birds so free,
Ye come when Winter's chill is gone
To tell that brighter days have come.

Fads and Fashions in Underwear.

A very attractive night-robe is cut high in the neck and finished with a puff of mull and bands of French insertion on the upper and lower edges. Ribbon of a pale lavender shade is run through the puffing and fastened on the right shoulder in loops and ends.

Epaulettes of mull, accordion plaited, ornament the shoulders, and a deep frill of embroidery makes a pretty finish. The sleeves are cut to the elbow, and finished with inserting and a frill of accordion-plaited mull.

This gown fastens on the side.

Another dainty night-robe is of mainsook, and fastens on one side. It is cut high in the neck, and has rows of lengthwise tucks, which form the front, and are outlined with feather-stitching done in Asiatic outline silk.

A straight piece of inserting, with a piece of embroidery attached, hides the fastening. The neck is finished with a narrow nainsook band edged with embroidery. The full sleeves are gathered into a band of nainsook, which is feather-stitched and finished with a frill of embroidery.

A third cambric night-robe has the neck outlined by clusters of fine shirring, through which ribbon is drawn and knotted on the shoulder. Lace is used on both sides of the puff. The back has a double Watteau plait.

Many of the new skirts have flounces of dimity, edged with lace or fine embroidery.

Walking-skirts are cut in umbrella style, and finished with deep flounces of diagonal strips of valenciennes inserting and lace. Such skirts are usually finished with three graduated dust-ruffles.

A tasteful corset-cover is of fine cambric, and shows the neck finished with a puff of mull edge, with lace, through which is drawn pale-blue ribbon.

Another corset-cover is of nainsook, and has a seven-inch V set in the front, composed of fine tuckings, edged with a narrow beading and lace. Ribbon is run through the beading.

Frequently night-gowns and entire suits of underwear are finished with rows of feather-stitching, done in Asiatic etching silk.—MAY ASHTON.

"Only a Woman."

The discussion on suffrage in THE AMERICAN FARMER interests me much, both because of having lived on a farm from childhood to gray hairs, and because of having been taught from earliest years that "taxation without representation is tyranny."

The opposers of woman suffrage say that women are virtually represented by fathers, brothers, husbands and sons; but no such phrase as "virtual representation" is known in law or Constitution, according to the great jurist, Jas. Otis. "If men and women were alike there might seem less injustice in part of the population making laws to govern the whole, but they are not alike;—in their very unlikeness lies the greater reason for equal voice in law-making. No woman can decide all a man's needs—no more can a man decide a woman's needs. He has tried to do so for years; in most cases kindly, but not the less blunderingly has he proved his incapacity in this respect.

Prof. Huxley says: "Suppose, for the sake of argument, we admit that women are inferior to men; would not this very inferiority be a reason why every advantage should be given the weaker sex, not only for its own good, but for the highest development of the race?"

Ralph Waldo Emerson affirmed that "if the wants, the passions, the vices, are allowed a full vote through the hands of a half-brutal, intemperate population, it is but fair that the virtues be allowed a full voice through the hands of the purest of the people—its women." And Bishop Simpson believes that "the vices in our great cities will never be conquered till the ballot is put in the hands of women."

A favorite argument against woman suffrage is that "women don't want to vote." Did our Government ask the colored freedmen if they wanted the right of suffrage? No, indeed, but gave it them, unsought, knowing that the ballot was, itself, their best educator. And if some women do not want to vote, is that a reason for depriving those who do? At a Presidential election 20,000 voters in New York refused, or neglected, to vote; was that considered reason for depriving all other male citizens of their right?

It is said that voting would draw woman from her "sphere." Do not public duties draw man from his sphere just as much? Can he attend to his duties as a citizen and not give time to them? But does he injuriously neglect his farm, shop, or desk by so doing? Beside, as Geo. Wm. Curtis wrote, "the sphere of the family is not the sole sphere of either men or women. They are not only parents; they are human beings, each with his or her individual talents, genius, ambitions, for the cultivation and use of which each is accountable."

"Politics are too dirty for women to mingle in" is another argument against woman suffrage; but the mother of Gen. Lew Wallace thinks it ought rather to be an argument for it. For "if men," she says, "having had control of politics, have allowed them to become dirty, it is time that women come to the rescue and help to clean things up—just the work at which they are adepts. If I thought politics necessarily dirty I should never want my boys to become voters; if politics are too dirty for my girls, they are too dirty for my boys."

So great a statesman as Abraham Lincoln said! "I go for all sharing the privileges of the Government who assist in bearing its burdens, by no means excluding women." Chas. Sumner predicted that "in the progress of civilization, woman suffrage is sure to come."

Chauncey M. Depew declares "that women have a right to say how they shall be taxed, and under what laws they shall conduct their business."

What shall we say of St. Paul and his much-quoted utterances of "Let your women keep silence" Why, just what Bob Burdette does; that "the great mass of people construct Paul's platform exclusively from this one saying, wholly ignoring his views on other important matters." If what Paul wrote for the women of Corinth as to their keeping silence in the churches applies to the women of to-day, why does not what he says of women teaching as well? Yet there are thousands of women teaching all over our broad land, without hindrance, as acceptably as their brothers, and for less salary, too. Moreover, Paul wrote to the women of Ephesus through Timothy, that they must "adorn themselves with modest apparel; not with braided hair, or gold, or pearls, or costly array," but no one pays heed to that now. As for Paul's personal views on marriage only Shakers are his consistent followers. If, then, these plain directions on woman's teaching, on her dress, and on marriage, given to these primitive churches nearly 2,000 years ago, are not considered to apply to the people of to-day, why must this one little clause of "keeping silence" be so binding on women now?—E. J. B., Empire State.

THE LYCEUM.

A Reply to E. A. B., Yoncalla, Ore., in April Issue of The American Farmer.

"Why is it that so many country places are without a literary society?"

Because the enterprise hangs upon the shoulders of the teacher, already too busy with the more important phases of education; or upon the school trustees, the majority of whom do not promptly and efficiently discharge their legimate duties to the public; or upon the Sunday School Superintendent, who, after all, is but a common citizen, with no more talent or authority in this direction—possibly not so much—as the one who asks "Why?"

Anyone who desires to start so good a thing as a lyceum is a person of progressive inclination and without doubt the possessor of an influence with his fellows which, coupled with

"The keen spirit,
Seizes the prompt occasion—makes the thought
Start into instant action, and at once
Plans and performs, resolves and executes!"

and should admit of no such idle excuse as merely asking "Why?"

While the benefits of a lyceum may be many, it, like every other good thing, has its abuses, and they are legion.

Of these the most common are strife among the members, too much frivolous matter on the program, and—saddest of all—the tendency of young "rowdies" to interfere and turn the organization from its legitimate purpose.

To be the success desired, the society must be started along right lines.

Interest the proper persons and secure their co-operation in its origin. Draft a suitable constitution and by-laws—stating fully, in "black and white," the name, object, and regulations of the organization.

In preparation of programs have a different committee of three appointed for each meeting, and require their sanction be given any material before its presentation to the audience be permitted. In this way, all questionable matter may best be excluded.

Make the aim of your society mental and moral development, not simply entertainment.

Do you know this desire for amusement—to be mentally played upon, instead of forced to reflective exertion—is working, in a subtle way, more harm to general intelligence than any other negative force of to-day? Sensational writings are sold by the million copies, while works on history, art, travel, and ethics lie yellowing in dust.

Pupils complain that teacher does not help them enough; and the educator is condemned for not pampering the child's mental laziness by doing its work for it.

Ministers pet this growing aversion for thinking by sermons so lucid and flowery that all the hearers need do is come back from roving in fields of thought in time to catch the summing up of his remarks with the benediction.

An estimable pastor of the writer's acquaintance is condemned by many because they have to think, to follow closely the trend of his thought, or lose the climax.

What do people attend divine service for, if not to do what these condemn? To be amused, to be sure. The eye is weakened by being continually shut from light; the muscle grows powerless from long-enforced relaxation; the mind becomes less capable of grasping and formulating lucid, elevating thoughts, by every indulgence in mental laziness.

Then make the lyceum of such a nature that it shall both entertain and instruct, conveying to those who come for amusement, a new idea, a morsel of instruction or a brighter coloring of life, to work its little mission in the mind.

The following list of subjects are suitable for debate in a new lyceum:

Which is the most despicable character, the hypocrite or the liar?

Which is the most baneful, skepticism or superstition?

Can any circumstance justify a departure from the truth?

Has nature or education the greater influence in the formation of character?

Is war in any case justifiable?

Has the fear of punishment or hope of reward the greater influence on human conduct?

Is military renown a fit object for ambition?

If E. A. B. has secured any benefit from this effort, and thinks the writer can be of further service, call on, or address, a sincere friend of advancement —(Miss) M. L. SUTTON, Wilbur, Ore.

Some Pretty Gowns for Little Maids.

Black is being affected a good deal now on children's dresses. This seems a little out of place at first thought, but black made up with a pretty contrast makes a charming gowning for our little maid's common wear. It is beyond all question that it will save quite a bit of work in washing and starching. And this is worth thinking of.

One pretty little black dress is made of black sateen. This is cut after the Mother Hubbard style, with the yoke of yellow silk. Ruffles of the black are placed over the shoulders, and these are feather-stitched with Boston art silk. The sleeves are cut bishop fashion, and these too are ornamented on the cuffs with the Boston art silk. The bottom of the skirt may also be so trimmed, or if a lighter weight silk is preferred, then Asiatic twisted embroidery will answer well, or Victoria or Hamburg knitting silks. Any one of these threads wash well and are durable.

Another pretty little black dress is made with a tucked waist front. Three tucks are made each side of the center of the front and each tuck is then feather-stitched with Asiatic twisted embroidery silk in pink. Frills are placed over the shoulders and meet in the center of the back of waist. Full sleeves are made and these have cuffs trimmed with the pink feather stitching. A short and full skirt finishes this charming little dress. One of the chief beauties of these garments is the fact that they are so easily "done up." The soft material washes easily and needs little ironing to look fresh and nice, and this lack of starching and hot irons is an important thing in favor of the simple wash dresses. —ROSE SEELYE MILLER.

A PROTEST.

As this column is open to all the readers of "The Farmhouse," the editor, herself, would like audience for a moment while she registers a protest against putting small girls in black clothes. It seems unsuitable for children; they ought to dress like the flowers, in pink and blue, yellow, red, white—in all the dainty colors. To clothe a dainty little maid in a black frock is like making black violets or primroses.—EDITOR OF THE FARM HOUSE.

FREE TO INVALID LADIES.

A lady who suffered for years with uterine troubles displacements, leucorrhœa and other irregularities, finally found a safe and simple home treatment that completely cured her without the aid of medical attendance. She will send it free with full instructions how to use it, to any suffering woman sending name and address to MRS. L. HUDNUT, South Bend, Ind.

RESOURCES OF THE STATES.

Interesting Facts About Them.

Oregon's salmon fisheries produce about 600,000 cases a year, and its wool clip exceeds 16,000,000 pounds. There are 25,000 square miles of forests, and the annual gold yield exceeds $1,000,000.

Delaware has 9,000 farms, valued at $37,000,000. It exports every year 7,000,000 quarts of strawberries and 55,000,000 baskets of peaches.

Missouri grows 219,000,000 bushels of corn, 36,000,000 bushels of oats, 20,000,000 bushels of wheat and 13,000,000 pounds of tobacco. The lead product has exceeded 100,000,000 pounds a year.

Massachusetts has over 100,000 persons engaged in the fisheries. The making of boots and shoes gives employment to 62,000; cotton goods, 58,000; building, 50,000; clothing, 33,000.

Michigan produces one-fifth of the iron of this country, mining 9,000,000 tons a year. The copper mines are the richest in the world, having produced over $200,000,000 worth of metal.

Rhode Island has 2,200 factories, employing 38,000 men, 22,000 women and 4,400 children. The combined capital of the mills is $76,000,000 and the annual output $104,000,000.

The State of Washington has salmon fisheries worth $1,500,000 a year, and catches 10,000 fur seals. It exports $8,000,000 worth of lumber and coal and raises 15,000,000 bushels of wheat.

Kentucky is the foremost State in the production of hemp and has been known to produce 35,000 tons in a year. It produces nearly two-thirds of the American tobacco crop, growing in 1889 280,000,000 pounds.

South Carolina farm products exceed $50,000,000 in value annually, $14,000,000 being cotton. About 70,000,000 pounds of rice are raised. Gold is mined in paying quantities at 60 places in the State.

Indiana produces 130,000,000 bushels of corn, 40,000,000 of wheat, 46,000,000 of oats and over 1,000,000 tons of timothy. It has 10,000,000 fruit trees, bearing 36,000,000 bushels of apples and 4,000,000 of peaches.

Arkansas has 10,000 farms, which produce 600,000 bales of cotton, 900,000 bushels of sweet potatoes, 1,000,000 pounds of tobacco, 42,000,000 bushels of corn and 2,000,000 bushels of wheat. From the Arkansas forests are cut over $20,000,000 worth of lumber every year.

Ohio raises 100,000,000 bushels of corn, 37,000,000 of wheat, 37,000,000 of oats, 12,000,000 of potatoes, 35,000,000 pounds of tobacco and 3,000,000 tons of hay. The vineyards produce 2,500,000 gallons of wine and 30,000,000 pounds of grapes.

Illinois produces $270,000,000 of farm products every year. The grain product reaches $145,000,000; live stock, $50,000,000; dairy products, $27,000,000; hay and potatoes, $26,000,000. The farm property is valued at more than $1,000,000,000.

Tons of Soot.

The soot ejected by a smokestack weighs more than is commonly supposed. The stack of a German sugar factory has been provided with a soot catcher. Six days afterward the soot was removed and it was found that during the time 6,700 pounds had accumulated. The stack of such a factory is estimated to throw out during the period of the year during which it is in operation the enormous quantity of 200 tons of soot.

THE sick man knocking at the door of health gets in if he knocks the right way, and stays out if he doesn't. There are thousand of ways of getting sick. There is only one way to get well. Do whatever you will, if you do not put your digestion in good order, and make your blood rich and pure, you will not get well. Rich, pure blood is the only thing that can bring perfect health. A large part of all the diseases that afflict mankind are traceable directly to impurities in the blood, and can be cured by eliminating these impurities. That most dreadful of all diseases, consumption, is a disease of the blood. The disease shows in the lungs because of some inherited or acquired weakness there. If the blood were always pure and without germs, the disease would never develop and in time weakness itself would be overcome. Germs and impurities in the blood float along through the body until they find a weak spot for lodgement. They stick there and develop and people call the disease by the name of the organ afflicted. As a matter of fact, the disease is always a disease of the blood, and if the blood be purified, the disease will be cured. That is a perfectly natural, rational conclusion, endorsed both by common sense and the highest medical authority. It is in accordance with these facts that Dr. Pierce's Golden Medical Discovery works. The first thing it does is to put the whole digestive system into perfect order. It stimulates the appetite, excites the copious secretion of the digestive fluids and promotes assimilation. It searches out disease germs wherever they may be, kills them and forces them out of the system. The "Golden Medical Discovery" has been used with unvarying success for over 30 years.

☞If you care to know more about it, and more about your own body, send 21 one-cent stamps to cover cost of mailing *only*, and you will receive *absolutely free* a copy of Dr. Pierce's 1008 page book, Common Sense Medical Adviser. Address, World's Dispensary Medical Association, No. 663 Main Street, Buffalo, N. Y.

TRIBUTE TO A MOTHER.

Interview with Charles H. Pinkham.

Malicious Stories About Lydia E. Pinkham Never Having Existed Refuted.

Son of the Famous Lynn Benefactor Tells of Her Kindly Interest in Womankind and her Actual Personality.

[*Times-Herald, Chicago.*]

Lydia E. Pinkham, who is so widely known by the benign face in the celebrated patent medicine advertisement, is not, as many people suppose, a myth. To this fact there is no stronger evidence than her son, Charles H. Pinkham, whom the Times-Herald reporter had the pleasure of interviewing to-day.

Lydia Pinkham's personality has probably never been described in any of the publications illuminated by her kindly portrait, but that she was a living force in the world was a positive fact.

Charles H. Pinkham passed through Chicago the other day on his way to spend a vacation in the west. To a representative of the Times-Herald he spoke feelingly of his mother and the painful impression that prevails in some quarters as to her non-existence.

"Of course," said Mr. Pinkham, "the mere idea is absurd to me, her son, who knew her to be the kindest, sweetest, gentlest mother in the world. She was all her portrait speaks her to be, and her whole life was given up to doing all the good she could in this weary world."

SIMPLE LIFE AND SYMPATHETIC.

"Her life was simple and her heart full of sympathy and tender feeling. After the business grew with almost miraculous rapidity, she devoted her entire time to it, or at least to that branch of it which related to correspondence with women seeking her advice, and her pleasure was in that duty. I am proud to say that my mother was not a myth, and that there was not a drop of selfishness in her make-up."

Mrs. Pinkham was unique among the makers of proprietary medicines. She was the first to print her portrait in her advertisements, and that face has seldom failed to warm the heart of anyone who has seen it. Mr. Pinkham carries a portrait of his mother in his inside pocket. It is the face of the advertisement sure enough.

Lydia Estes—that was her maiden name—was born in Lynn, Mass., and before her marriage she taught school in the little Yankee town. Her parents were Quakers, and it was in that simple fraternity she exhibited her early ideas of kindness. Her husband was a successful real-estate man, and possessed considerable wealth. There were four children, two of whom—Charles H. Pinkham and Aroline Chase Pinkham—survive, and who now own the business equally.

FIRST BREWING ON A STOVE.

Mrs. Pinkham had for years brewed the compound that now bears her name, on her kitchen stove, and had given it away to her neighbors. When the panic of 1873 came Mr. Pinkham, senior, lost his fortune. It was while the family were in straitened circumstances that one day two ladies drove to the Pinkham residence and asked Mrs. Pinkham to sell some of her already famous compound. This fact suggested the bright idea of making the medicine in quantities and offering it for sale. What followed, every newspaper reader knows. She insisted on carrying on her own correspondence, sharing her work with her daughter-in-law, Mrs. Charles H. Pinkham, and she soon came to be regarded as a public benefactor. This title she deserved in ample measure.

When she died she bequeathed her place at the head of the business to her daughter, who to-day, with years of experience and study, and by the aid of a corps of assistants, personally attends to the great mass of correspondence that flows in and out of the big concern in Lynn; and that bond of confidence so thoroughly established between Lydia E. Pinkham and the women of America, whereby they were enabled to talk freely of their private illness to a woman, has never been broken.

It has been the aim of this great woman's children to carry on the work begun by the mother in the same spirit of kindness that characterized her whole life.

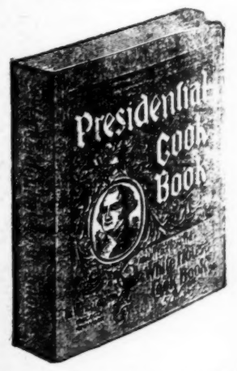
Lydia E. Pinkham is more than a dispenser of medicine. She is a fact in history.

The Presidential Cook Book

Adapted from the famous

WHITE HOUSE COOK BOOK.

The Best Household Compendium published.



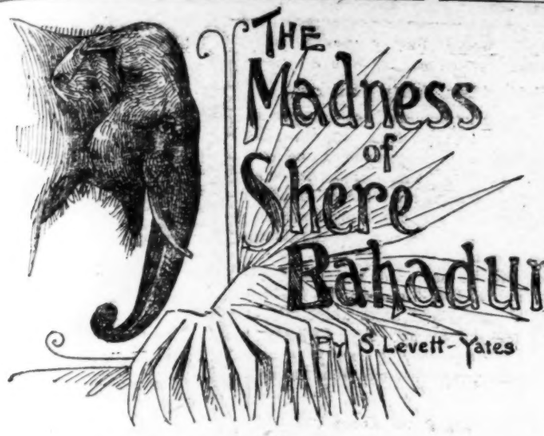
448 pages; 8½x6 inches; weight 1½ lbs; over 1,400 tested recipes; by HUGO ZIEMANN, ex-Steward of the White House, and the well known expert, MRS. F. L. GILLETTE; illustrated, including fine engravings of Mrs. Cleveland and Mrs. Harrison.

The White House Cook Book has a reputation that is national. It is based on its real worth. Every recipe it contains was actually tested by the authors and found to be invariably successful, and every Cooking **Recipe** it contains is reprinted in full in **The Presidential Cook Book**; thoroughly up-to-date; large type; large pages; plainly indexed. A handy volume—in short, a Perfect Cook Book.

OUR OFFER.

The above book will be sent, postage prepaid, upon the following terms: Free for a club of 3 yearly subscriptions at 25 cents each; or paper one year and the book, 55 cents. Book alone, 40 cents.

The American Farmer, Washington, D. C.



THE MAHOUT'S SMALL son, engaged with an equally small friend, in the pleasant occupation of stringing into garlands the thick yellow-and-white champac blossoms that strewed the ground, under the broad-leafed tree near the lentena hedge, was startled by an angry trumpet, and looked in the direction of Shere Bahadur.

"He is *must*," said one to the other, in an awe-struck whisper; and then, a sudden terror seizing them, they bounded like little brown apes silently and swiftly into a gap in the hedge, and vanished.

There were 10,000 evil desires hissing in Shere Bahadur's heart, as he swayed to and fro under the huge peepul tree to which he was chained. Indignity upon indignity had been heaped upon him. It was a mere accident that Aladin, the mahout who had attended him for 20 years, was dead. How on earth was Shere Bahadur to know that his skull was so thin? He had merely tapped it with his trunk in a moment of petulance, and the head of Aladin had crackled in like the shell of an egg. Shere Bahadur was reduced to the ranks. For weeks he had to carry the fodder supply of the Maharaj's stables, like an ordinary beast of burden; and a low-caste slave, a fool to boot, had been put to attend on him. It was not to be borne. Shere Bahadur clanked his chains angrily, and, ever and anon, flung wisps of straw, twigs and dust on his broad back and mottled forehead. He, a Kemeriah, of Kemeriahs, to be treated thus! He was no longer the stately beast that bore the yellow-and-silver howdah of the Maharaj Adhiraj in solemn procession—who put aside, with a gentle sweep of his trunk, the children who crowded the narrow streets of Kalesar. No; it was different now. He was a felon and an outcast, bound like a thief. Something had given way in his brain, and Shere Babadur was mad. The flies hovered on the sore part over his left ear, where the long peak of the driving-iron had burrowed in, and, with a trumpet of rage, the elephant blew a cloud of dust into the air, and strained himself backward.

Click! Click! The cast-iron links of the big chain that bound him snapped, and Shere Bahadur was free. He cautiously moved his pillar-like legs backwards and forwards to satisfy himself of the fact, and then, with the broad fans of his ears spread out, stood for a moment still as a stone. High up amongst the leaves the green pigeons whistled softly to each other, and a gray squirrel was engaged in hot dispute with a bluejay over treasure trove, found in a hollow of one of the long branches that, python-like, twined and twisted overhead. Far away, tier upon tier of purple hills rose, and beyond them a white line of snow-capped peaks stood out against the sapphire of the sky. Hathni Khund was there, the deep pool of Jumna, where, thirty years before, Shere Bahadur had splashed and swum. It was there that he fought and defeated the hoary tusker of the herd—the one tusked giant who had bullied and tyrranized over his tribe for time beyond Shere Bahadur's memory.

Perhaps a thought of that big fight stirred him; perhaps the breeze brought him the sweet scent of the young grass in the glens. At any rate, with a quick, impatient flap of his ears, Shere Bahadur turned and faced the hills. As he did so his twinkling red eyes caught sight of the Kalesar state troops, on their parade ground, barely a quarter of a mile from where he stood.

The fat little Maharaj was there, standing near the saluting point. Close to him was the Vizier, with the court; and last, but not least, a knowing little fox-terrier dug up the earth with his fore paws, scattering it about, regardless of the august presence.

The Maharaj was proud of his troops. He had raised them himself, in an outburst of loyalty, the day after a birthday gazette, in which His Highness Sri Ranabir Pertab Sing, Maharaj Adhiraj of Kalesar, had been admitted a companion of an exalted order. The Star of India glittered on the podgy little prince. He was dreaming of a glorious day when he—he himself—would lead the victorious levy through Khyber, first in the field against the Russ, when a murmur that swelled to a cry of fear rose from the ranks, and the troops melted away before their king. Rifles and accouterments were flung aside, there was a wild stampede, and the gorgeously attired Colonel, putting spurs to his horse, mingled up with the dust and was lost to view.

The Maharaj stormed in his native tongue, and then burst into English oaths. He had a very pretty vocabulary, for had he not been brought up under the tender care of Sirkar? He turned in his fury towards the Vizier; but was only in time to see the snowy robes of that high functionary disappearing into a culvert, and the confused mob of his court running helter-skelter across the sward. But yet another object caught the prince's eye, and chilled him with horror; it was the vast bulk of Shere Bahadur moving rapidly and noiselessly towards him.

Sri Ranabir was a Rajpoot of the bluest blood, and his heart was big; but this awful sight, this swift, silent advance of hideous death, paralyzed him with fear. Already the long shadow of the elephant had moved near his feet, already he seemed impaled on those cruel white tusks, when there was a snapping bark, and the fox-terrier flew at Shere Bahadur and danced around him in a tempest of rage. The elephant turned, and made a savage dash at the dog, who skipped nimbly between his legs, and renewed the assault in the rear. But this moment of reprieve roused his highness. The prince became a man, and the Maharaj turned and fled, darting like a star across the soft green.

Shere Bahadur saw the flash of the jeweled aigrette, the sheen of the order; and, giving up the dog, curled his trunk and started in pursuit. It was a desperate race. The Maharaj was out of training; but the time he made was wonderful, and the diamond buckles on his shoes formed a streak of light as he fled. But, fast as he ran, the race would have ended in a few seconds if it had not been for Bully, the little white fox-terrier. Bully thoroughly grasped the situation, and acted accordingly. He ran round the elephant, now skipped between his legs, and the next moment snapped at him behind; and Bully had a remarkably fine set of teeth.

The Maharaj sighted a small hut, the door of which stood invitingly open; it was a poor hut, made of grass and sticks; but it seemed a royal palace to him.

"Holy Gunputty!" he gasped "if I could"——

But it was no time to waste words; already the snake-like trunk of his enemy was stretched out to fold round him, when, with a desperate spurt, he reached the door and dashed in. But Shere Bahadur was not to be denied. He stood for a moment, and then, putting forward his forefoot, staved in the side of the frail shelter and brought down the house. Sri Ranabir hopped out like a rat, and it was well for him that, in the cloud of dust and thatch flying about, he was unobserved, for Shere Bahadur, now careless of Bully's assault and certain of his man, was diligently searching the *debris*. But he found nothing but a brass vessel, which he savagely flung at the dog; then he carefully stamped on the hut and reduced everything to chaos. In the meantime Sri Ranabir, unconscious that the pursuit had ceased, ran on as if he was wound up like a clock—ran until his foot slipped, and the Maharaj Adhiraj rolled into the soft bed of a nullah, and lay there with his eyes closed, utterly beaten, and careless whether the death he had striven so hard to avoid came or not.

Then there was a buzzing in his ears, and everything became a blank.

"Blessed be Vishnu! He liveth"—and the Vizier helped his fallen master to rise, aided by the heir apparent, in whose heart, however, there were thoughts far different from those which found expression on the lips of the Nawab Juggun Jung, Prime Minister of Kalesar. The sympathetic, if somewhat excited, court crowded round their king; and a little in the distance was the whole population of Kalesar, armed with every conceivable weapon, and keeping up their courage by beating on tom-toms, blowing horns and shouting until the confusion of sound was indescribable.

"Come back to the palace, my lord. They will drive the evil one out of him"—and the Vizier waved his hand in the direction of the crowd, and pointed to where, in the distance, Shere Bahadur was making slowly and steadily for the hills. But the Maharaj Adhiraj would do no such thing. "*Ryfut lao*," he roared in his vernacular; "Gimme my gun," he shrieked in English. There was no refusing. A double-barrelled gun was thrust into his hands; he scrambled on to the back of the first horse he saw, and, followed by his cheering subjects and the whole court, dashed after the elephant.

"Mirror of the Universe, destroy him not," advised the Vizier, who rode at the prince's bridle hand. "The beast is worth 8,000 rupees, and cannot be replaced; the treasury is almost empty, and we shall want him when the Lat Shaib comes."

The Maharaj was prudent if he was brave, and the empty treasury was a strong argument; besides, they were getting rather close to Shere Bahadur, and outpacing the faithful people. But he gave in slowly.

"What is to be done?" he asked, taking a pull at the reins.

"The people will drive him back," replied the Vizier, "and we will chain him up securely. He is but *must*, and in a month or so all will pass away.

Shere Bahadur had now reached an open plain, where he stopped, and, turning round, faced his pursuers.

"Go on, brave men!" shouted the Vizier; "a thousand rupees to him who links the first chain on that Shaitan. Drive him back! Drive him back!"

There is the courage of numbers, and this the people of India possess. They gradually formed a semicircle round Shere Bahadur, cutting off his retreat to the hills, and attempted by shouts and the beating of tom-toms to drive him forwards. But they kept at a safe distance, and the elepant remained unmoved.

"Prick him forwards," roared the Vizier. "Are none of ye men? Behold! the Light of the Universe watches your deeds! A *must* elephant!—Pah! what is it but an animal?"

"By your lordship's favor," answered a voice, "he is not *must*, only angry—there is no stream from his eye. Nevertheless I will drive him to the lines, for I am but dust of the earth, and a thousand rupees will make me a king." Then a red-turbaned man stepped out of the throng. It was the low-caste cooly who had been put to attend to the elephant on Aladin's death. He was armed with a short spear, and he crept up to the beast on his hands and knees, and then, rising warily, dug the weapon into the elephant's haunch. Shere Bahadur rapped his trunk on the ground; gave a short, quick trumpet, and, swinging round, made for the man. He did this in a slow, deliberate manner, and actually allowed him to gain the crowd; then he flung up his head with a screech, and dashed forward.

Crack!—crack! went both barrels of Sri Ranabir's rifle, and two bullets whistled harmlessly through the air. The panic-struck mob turned and fled, bearing the struggling prince in the press. The elephant was, however, too quick, and to his horror, Sri Ranabir saw that he had charged home.

Then Sri Ranabir also saw something that he never forgot. Not a soul did the elephant harm; but, with a dogged persistence, followed the red turban. Some, bolder than the rest, struck at him with their thin talwars, some tried to stab him with their spears, and one or two matchlocks were fired at him, but to no purpose. Through the crowd he steered straight for his prey, and the crowd itself gave back before him, in a sea of frightened faces. At last the man himself seemed to realize Shere Bahadur's object, and it dawned like an inspiration on the rest. They made a road for the elephant, and he seperated his quarry from the crowd.

At last! He ran him down on a plowed field, and stood over the wretch. The man lay partly on his side, looking up at his enemy, and he put up his hand weakly and rested it against the foreleg of the elephant, who stood motionless above him. So still was he that a wild thought of escape must have gone through the wretch's mind, for, with the resource born of imminent peril, he gathered himself together inch by inch and made a rush for freedom. With an easy sweep of his trunk Shere Bahadur brought him back into his former position, and then—the devil came out, and a groan went up from the crowd, for Shere Bahadur had dropped on his knees, and a moment after arose, and kicked something—a mangled, shapeless something—backwards and forwards between his feet.

"Let him be," said the Vizier, laying a restraining hand on Sri Ranabir. "What has he killed but refuse? The Shaitan will go out of him now."

When he had done the deed, Shere Bahadur moved a few yards farther, and began to cart clods of earth over himself.

Then it was seen that a small figure, with a driving-hook in its little brown hand, was making directly for the elephant.

"Come back, you little fool!" shouted Sri Ranabir. But the boy made no answer, and, running lightly forward, stood before Shere Bahadur. He placed the tinsel-covered cap he wore at the beast's feet, and held up his hands in supplication.

The crowd stood breathless; they could hear nothing, but the child was evidently speaking. They saw Shere Bahadur glare viciously at the boy, as his trunk drooped forward in a straight line. The lad again spoke, and the elephant snorted doubtfully. Then there was no mistaking the shrill treble—"Lift!" Shere Bahadur held out his trunk in an unwilling manner. The boy seized hold of it as high as he could reach, placed his bare feet on the curl, and murmured something. A moment after he was seated on the elephant's neck, and lifting the driving-iron, waved it in the air.

"Hai!" he screamed, as he drove it on to the right spot—the sore part over the left ear. "Hai! Base-born thief—back to your lines."

And the huge bulk of Shere Bahadur turned slowly round and shambled off to the peepul tree like a lamb.

"By the trunk of Gunputty! I will make that lad a havilder, and the 1,000 rupees shall be his," swore the Maharaj.

"Pillar of the Earth!" advised the Vizier, "let this unworthy one speak. It is Futteh Din, the dead Aladin's son—give him five rupees, and let him be mahout."

When I last saw Shere Bahadur he was passing solemnly under the old archway of the "Gate of the Hundred Winds" at Kalesar. The Maharaj Adhiraj was seated in the howda, with his excellency the Nawab Juggun Jung by his side. On the driving seat was Futteh Din, gorgeous in cloth of gold; and they were on their way to the funeral pyre of the heir apparent, who had died suddenly from a surfeit of cream.

As they passed under the archway, a sweetmeat seller rose and bowed to the prince, and Shere Bahadur, stretching out his trunk, helped himself to a pound or so of "Turkish delight."

"Such," said the sweetmeat seller to himself ruefully, as he gazed after the retreating procession—"such are the ways of kings."—*Pall Mall Magazine.*

THE ENIGMA.

[For the leisure hour of readers, old and young. All are invited to contribute original puzzles and send solutions to those published. Answers and names of solvers to this issue will appear in two months. An asterisk (*) after a definition signifies that the word is obsolete. Address letters for this department: "Puzzle Editor," AMERICAN FARMER, 1729 New York Ave., Washington, D. C.]

ENUCLEATIONS—NO. 24.

213—Eng-land.

214—
S
SIR
FINER
FINALES
SINAPOLIN
SINAPICACID
RELOCATES
RELATES
SICES
NIS
D

217—
J
PUH
BEDES
BURGLAR
PERAMELES
JUDGMENTDAY
HELENIEAE
SALTERN
REDAN
SAE
Y

219—Sphinx.

220—FACTS
APARAS
CABALAS
TRAVELED
SALEWARES
SALAGANE
SERAPIS
DENIES
SESSA

223—
C
POT
CARES
CORPSED
PAROSTCAL
CORPSDARNEE
TESTAMENT
SEERESS
DAMNS
LET
E

225—A-down.

226—
MASTERSTEPHEN
MERCENARIAN
MALTALENT
MATRICE
TEINT
ENA
G

216—Ragamuffin.

215—
K
AND
FREED
PARETIC
ARROWHEAD
KNEEWORSHIP
DETHRONED
DIESNON
CAHEN
DID
P

218—
Y
CMA
WARPS
WAMBOOL
CAMPAGNOL
YERBAMANSAS
APOGAMIES
SONNIES
LOSES
LAS
S

222—Now; Own.

221—ZESTS
ENTRAP
STRALES
TRAVELER
SALEWARES
PELAGIAN
SERIEMA
REAMER
SWARE

224—
F
PES
BRACT
BROTHER
PROTHESES
FEATHERSTAR
SCHERBETS
TESSERA
RETTA
SAS
R

Authors of word-forms: Primose, C. Saw, Eugene (2), Gi Gantic (2), Rokeby (2), A. Dandy.

ENIGMANIACS.

(*April.*)

Complete Lists: None.

Incompletes: Poly, Maude, Gi Gantic, C. Saw, Arty Fishel, Cinders, Holly, King Cotton, Lo Yell, Pennock, Joel H. Hint, Remardo, Ben. Trovato, Malenco, Primrose, Pearlie Glen, Night Owls, Carl, Guidon, Rodger, A. L. Vin, Harry, Mazy Masker, Pearl, Jo King, T. O'Boggan, Lillian Locke, Frantz, Swamp Angel, Si. Key, Miss Chief, Oloffe Innished, Cosette, Jo Urnal, Rex Ford, A. N. Drew, Ellsworth, Rokeby, Nyas.

Prize Winners.

1. Not won. 2. T. O'Boggan. 3. Guidon. 4. Harry.

ENIGMANIA—NO. 26.

NO. 236—CAMBRIDGE HEXAGON.

1. Conceptional. 2. An amphibious, insectivorous mammal found in Russia. 3. Shuns. 4. The strawberry finch, a small Indian song bird. 5. A monotypic genus of Chilean plants of the lily family. (Stand.) 6. Mentioning.* 7. P. O., Weld Co., Colo. 8. Something very inflammable. 9. English antiquary; 1540-1615.

—PRIMROSE, Baltimore, Md.

NO. 237—DELETION.

"Wal, Hanner, gal, I've komed ter see
If yer'll go down ter town with me,
Ther squire'll be there—and, what yer say?—
Suppose we ALL for good to-day."

"Wal, Hank, a-seeing it's nigh a year
Since fust yer komed a-courtin' here,
Wal, yes, fer ther LAST o' ther thing,
We might as well be hitched, by jing."

That was the start they had in life
When "Hank" made "Hanner, gal" his wife.
They've had good luck, and each year brings
Plenty ten-fold—the LAST o' things.

—TEEPEEKAY, Rochester, O.

NO. 238—DIAMOND.

1. A letter. 2. The thirteenth letter in the Hebrew alphabet. (Stand.) 3. Worried.* 4. The edible viscera, as the heart, liver, etc., of a beast. 5. Directed. 6. Members of one of the three great families of the Levites. (Stand.) 7. Black varieties of garnet. 8. Delights. (Stand.) 9. Kinds of wigs. 10. Fourth letter of the Latin language. (Cent.) 11. A letter.—GI GANTIC, St. Louis, Mo.

NO. 239—TRANSPOSITION.

(Drink to me only with thine eyes.—*Johnson.*)

Thine eyes, within whose depths so still
There LA-T a kindly glow;
That need but thought of suffering man,
To cause the tears to flow;
Or recollection of some ill,
Wrought by fair Virtue's foe,
To rouse a righteous flash that can
The sinning heart o'erthrow;—

To me the glory of those eyes
Serves as a guiding light,
To brighten up, in life's abode,
The path of virtue bright;
Corrupting PRIME that may arise
To me seem dark as night,
For thine inspiring good doth load
Then with e'erlasting blight.

—C. SAW, New York City.

NOS. 240-1—DIAMONDS.

1. A letter. 2. In order to. 3. Allevintes. 4. Cleaves.* 5. Pertaining to Aaron, the high priest of the Jews. 6. Hint. 7. Straying. 8. A sectary. 9. A person sanctified. 10. A Hebrew measure of liquids containing 2.37 gills. 11. A letter.

(*To Guardineer.—No.* 194.)

1. A letter. 2. To kiss. 3. One who defies. 4. Means. 5. The coon crake. (Stand.) 6. District, Euboea, Greece. 7. Small hand cannons used in France in the 15th century. 8. The sea-sand reed. 9. Skilled. (Stand.) 10. Aurora the Goddess of moon. 11. A letter.

—POLY, Brooklyn, N. Y.

NO. 242—ANAGRAM.

A Dear Guy—Month of Violets.

Gentle May
Rules again!
With her budding forest trees
And that sweet enchanting breeze,
Springtime's low refrain.
Zephyrs play
Down the lane,
Whispering to the violet fair
Of her charming beauty rare,
With Pandean strain.

Yes, the queen
Of the year,
Fillets crown her chiseled brow,
Days illume her longer now,
Nature's jewel dear,
Gay the scene,
Birds we hear
Warbling joyously their lay,
Fairest flowers scent the way
By the brooklets clear.

Meadows green
Stretch away
With a verdure born anew,
Grazing cows appear to view
In the morning's ray.
Twilights sheen,
Sunsets gay
Clothe her fragrant dying hours,
Oft you're lulled to sleep by showers,
Sweet and winsome May.

—ZOROASTER, Philadelphia, Pa.

NOS. 243-4—DIAMONDS.

1. A letter. 2. A worthless, snarling fellow. 3. The red monkey. 4. A colonnade or covered ambulatory. 5. A member of a secret political association in Italy. 6. A hood over the end of a wagon wheel hub to keep dirt away from the axle. 7. The impression of a rain-drop on recent mud or fossil on the surface of ancient strata. (Stand.) 8. Serving as an aid in clambering. 9. An arboreal anthropoid ape. 10. P. O., Coos Co., Oregon. 11. A letter.

—EUGENE, Pittsburg, Pa.

1. A letter. 2. A spring of mineral water. 3. Parchment records. 4. Projections in the throats of such flowers as the snapdragon. 5. A salt of selenic acid 6. A non-motile spore formed by rejuvenescence of certain green algæ. (Stand.) 7. An arrangement of lenses and mirrors which enables a person to see an object in spite of intervening objects. 8. Oriental soldiers disciplined in the European manner. 9. Depressions in faces of dogs. 10. Rather than. 11. A letter.

—REX FORD, Alplaus, N. Y.

NO. 245—ANAGRAM.

O, conquest song! Here I cheer me!

(A la Bowery.)

Oh, the day that I met Chester,
On my pool playing he cast a slur,—
Said he could do me that very night,
Do me so bad I'd drop out of sight.
We went into a pool parlor,
(He thought I'd ne'er been there before,)
He picked up a cue and began to play;
Alack and alas, how he rues that day,
Two dollars and fifty he had to pay,
And he'll never go there any more.

But the worst I have yet to tell:
He claimed that that time he was feeling unwell—
Wanted another good chance, he said,
Imagined I surely must be dismayed,
Came over to Baltimore numerous times,
Brought always along a half bushel of dimes—
A dime is the tax on each game, you know,—
And it cost Chester all of his dimes to blow,
It's paid by the fellow whose playing is 'slow,'
So he'll never go there any more.

—LORD BALTIMORE, Baltimore, Md.

NOS. 246-7—DIAMONDS.

1. A letter. 2. To follow. 3. A book or pamphlet. 4. Began. 5. The Juneberry. 6. Plants of the Vaccinium group. 7. Taps at which water is or may be drawn. 8. Registers of lands.* 9. Falls in drops. 10. Ay. 11. A letter.

—GUARDINEER, Poultney, Vt.

1. A letter. 2. Twice. 3. A tour of Northern Algiers. 4. Town of Russia, in Kolivan. (Worc.) 5. A male goat. 6. A pellucid, fragrant, acrid, bitter resin which exudes from the piney tree when wounded. 7. Favorite drinks in the West Indies. 8. Large male kangaroos. 9. Uncles.* 10. To heap.* 11. A letter.

—DAN D. LYON, Irwin, Pa.

ENIGMIANA.

Arty Fishel, writing in the Ardmore *Home News*, has this to say: "My friend, Zoroaster Macaran, whom I brought with me to Wynnewood one day, created something of a sensation by demanding a sight of the cow which produces the buttermilk. It is not true, however, as has been asserted, that Zoroaster thought cabbages grew on trees. He has too great a head for that." Fishel continues to write poetry for *Cycle Guide*, eulogistic of the wheel; but that does not prove he has one or more of them. And now and then Zoroaster evens up with the Scribe by saying scurrilous things about his 9 for 5 stogas.——Arcanus, who is city editor of the *Republican* of Iowa City, has had his troubles with the typo. Here is a specimen of the printer's brightness: "The columns of the *Republican* has frequently been frightened with the gems of poesy that flows from his facile pen." Compared with this, Miss Fit's initial experience is hardly worth mentioning. And Hollingsworth's compositors are doing better work on "Nonplustics" week by week.——Had No. 242 been published May 1 instead of June 1, the anagram would have been perfectly seasonable. Here is a tip for solvers.——We can overlook the flings of Lord Baltimore, since we know the proprietor of the Eutaw House is in a position to successfully contradict Block's slanders.——The forms from Poly came to hand just in time for this issue.——Answers to last month's conundrums by Mattie W. Baker are coming to hand at a lively rate, some of the lists being very nearly complete, showing that the puzzlers took quite an interest in the series.——A. L. S. Ager fairly outdid himself in No. 2 of *Knots*—that is to say, the *Courier* spirit in that number was considerably more rampant than that which characterized No. 1. A paper which flagrantly abuses the tenets of legitimate puzzle journalism can have but short life at most, and we have heard, offhandedly, that one of the four who are furnishing funds for the publication of *Knots'* has announced that he will "get out" if a radical change does not soon come—which will be the signal of its death. So far *Knots'* editorial policy has not only disappointed but disgusted the majority of puzzlers.——We can use more of Bog Seraph's flats.

6-1-'96. R. O. CHESTER.

Rape in Ohio.

The Ohio Experiment Station has been trying rape, and says: About the 1st of July we cleaned off a small patch which had been sown to cow peas, sowed it to rape and harrowed it lightly to cover the seed; in three weeks from date of planting it had almost hidden the ground, showing a very much more rapid growth than when planted earlier. Our sheep were very found of it and did well while feeding on it.

If pastured upon the rape patch, sheep, when first turned in, or, rather, after they get to eating nicely, should not be turned in when very hungry or when the rape is wet, as they may overeat and suffer from indigestion, or they may die from bloating. There is also some danger of them purging at first. If they have access to an old pasture when first turned on the rape it will be very effective in preventing scours, as well as other disorders likely to arise from impaired digestion. If the first few days are passed without trouble, it will not be necessary to remove the sheep from the patch, but it will always be judicious to look after them frequently. A serious objection to the rape plant is that it is liable to be attacked with the cabbage aphis. This little pest is capable of destroying a whole field within a very short time.

A greater objection to the crop is the rapidity with which it depletes the soil. Should future experiments give results similar to those already obtained, it will make the growing of rape a very doubtful quantity. Were it not for the two objections, which are only tentative, rape might well be regarded as a new forage crop of more than passing value.

"IMPOSSIBLE!"

That Word is Often a Mistake.

How Resolution and Reason Make the "Impossible" Possible.

"Are you the young man who pretends to do the impossible; to tie a knot in a stretched string?" This was the question Minister of War Carnot of France, grandfather of the late president, asked a hundred years ago of a young inventor by the name of Jacquard, who had invented a machine for

weaving nets without the use of a shuttle. He was not long in showing that his machine would do that very thing; the assumed impossibility was possible.

True science is always ready to find "impossibilities" in anything new or unusual. The philosophers of Salamanca were sure it was impossible for Columbus to sail around the globe because he would have to sail uphill one way. When Stephenson was planning his locomotive, the wiseacres were sure that it would never run without cogs on the track and the wheels; they would certainly "slip round and round," and the locomotive wouldn't locomote, anyway; it was "impossible." Plenty of people were certain that the great Atlantic cable was an impossibility, and as for the telephone, the idea of conveying the human voice over a wire a hundred miles long, of course it was "impossible." Yet all these things have been accomplished.

The men who call themselves scientists often spend a great deal of time with square and compass proving to a mathematical certainly that things cannot be done, while men of resolution and reason go ahead and do them. The true science of progress and accomplishment strides steadily onward, sweeping over the little dummy wooden scientists which stand in the way with their manifest "impossibilities."

Thirty years ago one of the so-called "impossibilities" was the cure of consumption. The doctors agreed almost unanimously that consumption was incurable, and that once the lungs became affected there was no hope. But a young physician of Buffalo, N. Y., Dr. R. V. Pierce, believed that theory was false. His study and observation had convinced him that consumption is a blood disease, and he was sure it could be cured if the right medicine was discovered to purify and enrich the blood.

He felt certain that nature had somewhere in her great storehouse of remedies a medicine that would accomplish this purpose. He set himself the task of finding it, and after painstaking research and exhaustive practical experiment, he discovered his now famous "Golden Medical Discovery," a true scientific remedy for consumption and all chronic lung, throat and bronchial affections. During the last thirty years the "Discovery" has cured consumptives by thousands. It has proven the most wonderful remedy of the age for lingering coughs and colds, and all broken down, wasting conditions of the system, which doctors formerly shook their heads over as being the open highway to incurable disease.

The secret of power in the "Golden Medical Discovery" is its wonderful blood-making properties. It makes fresh, red, healthy blood. It gives the blood-making glands power to increase the red corpuscles in the blood. It puts the vital life-giving elements into circulation, so that the lungs and tissues of the throat and bronchial tubes are nourished and healed, and built up rapidly and permanently. It arrests the formation of tubercular matter and other morbid products. It gives the stomach and digestive organs power to get the nutritious properties out of the food; it acts on the liver and enables it to filter out the impurities which clog and pollute the system in the condition commonly known as "biliousness" or "liver complaint."

The nervous exhaustion and debility which result from morbid action in the blood, is completely overcome by the vitalizing qualities of Dr. Pierce's marvelous "Discovery." It braces and tones up the nervous system with a new supply of fresh highly vitalized blood which feeds the starving nerves and furnishes renewed power and activity.

For delicate, pale and puny people, whether adults or children, the "Discovery" is the most remarkable flesh-builder ever known. It wipes away wrinkles and fills out the hollow and sunken places. Its nutritive properties far exceed those of cod liver oil, extract of malt, or any other nervine or tonic ever invented. It does not make soft, flabby fat; it will not add an ounce of adipose tissue beyond the standard of perfect health, but makes solid flesh, muscle, strength and energy; and for this reason is particularly valuable to corpulent people.

There is no physician living who has had a wider practical experience with obstinate chronic diseases than Doctor Pierce. As chief consulting physician to the Invalids' Hotel and Surgical Institute, at Buffalo, N. Y., for nearly thirty years, he has with his staff of specialists treated many thousands of patients, and has acquired a reputation second to no physician in the world as a successful specialist and high authority in chronic diseases.

As an author on medical subjects, his published works have had a larger sale than any other medical books in any language. His thorough understanding of physiology, remarkable acquaintance with *materia medica*, and unrivaled genius in combining and adapting natural remedies to the cure of disease, are widely recognized both in this country and Europe, and have caused his prescriptions to become standard remedies throughout the world.

Women, everywhere, have received incalculable benefit from the extraordinary curative power of Dr. Pierce's Favorite Prescription for the disorders and derangements peculiar to their sex. No other medicine in the world has done so much to restore women to health and cheerfulness. Its sales exceed the combined sales of all other medicines for women. In obstinate constipation, Dr. Pierce's Pleasant Pellets are acknowledged as the most perfect laxative and permanent cure ever invented.

It is well known that some druggists who prefer their own profit rather than the benefit of their customers, are in the habit of substituting or attempting to substitute something else which pays them better in place of Dr. Pierce's remedies. This is a covert insult to the customer's intelligence, and as such is justly resented by those who know what they want.

One of the most interesting books ever written is Dr. Pierce's "Common Sense Medical Adviser." It contains 1008 pages of information and sensible professional advice on medical subjects; with instructions for home treatment of simple diseases, and a complete detailed description of human physiology, in plain and chaste language, with over 300 illustrations and colored plates. It is, in fact, a home Doctor, a family medical library in one volume.

The profit on former editions of 680,000 copies which were sold at $1.50 each, enables Dr. Pierce to carry out his plan of distributing a new edition of one-half million copies absolutely free to every one who sends 21 cents in one-cent stamps, to pay the cost of mailing only, at the same time enclosing the little NUMBERED printed here this paper. COUPON No. 185. COUPON to be cut from Send to the World's Dispensary Medical Association, Buffalo, N. Y., of which Dr. Pierce is president. This free book is exactly the same as the $1.50 edition, except that this is bound in strong paper covers. If you perfer a French-cloth, embossed binding, send 10 cents extra (31 cents in all) to defray the extra cost of this handsomer and more substantial binding.

Deepest Water Ever Found.

Some spots have recently been found in the South Pacific Ocean where the water is deeper than anywhere hitherto known.

Her Majesty's surveying ship Penguin, while returning from the Tonga group to New Zealand, has sounded in three places where the depth exceeds 5,000 fathoms. Up to the present the deepest water found was to the northeastward of Japan, where, in 1874, the United States steamer Tuscarora obtained a cast of 4,655 fathoms.

The Penguin's soundings are 5,022, 5,147 and 5,155 fathoms. The increase is, therefore, 500 fathoms, or 3,000 feet.

These soundings are separated from one another by water much less deep, and the holes may not be connected. The distance from the two extreme soundings is 450 miles. Specimens of the bottom were recovered from the two deeper soundings, and prove to be the usual red clay found in all the deepest parts of the oceans.

These soundings afford additional evidence of the observed fact that the deepest holes are not in the centers of the oceans, but are near land, as two of them are within 100 miles of islands of the Kermadec group, and the other not far from a shoal. Doubtless deeper depressions in the bed of the sea are yet to be found, but the fact that this sounding of 30,930 feet shows that the ocean contains depressions below the surface greater than the elevation of the highest known mountains is, perhaps, worthy of record.—*The London Times.*

Harness Polish.

Four ounces glue, one and one-half pints vinegar, two ounces gum arabic, half pint black ink, two drams isinglass. Break the glue in pieces, put it in a basin and pour over it about a pint of the vinegar; let it stand until it becomes perfectly soft. Put the gum in another vessel, with the ink, till it is perfectly dissolved; melt the isinglass in as much water as will cover it, which may be easily done by placing the cup containing it near the fire about an hour before you want to use it. To mix them, pour the remaining vinegar with the softened glue into a sauce pan upon a gentle fire, stirring it until it is perfectly dissolved, that it may not burn the bottom, being careful not to let it reach the boiling point—about 82° C. is the heat. Next add the gum, let it arrive at about the same heat again; add the isinglass. Take from the fire and pour it off for use. To use it put as much as is required in a saucer; heat it sufficiently to make it fluid, and apply a thin coat with a piece of dry sponge; if the article is dried quickly, either in the sun or by fire, it will have the better polish.

"Thrue for You."

"The reason why the British want to swallow up half of Venezuela," asserted Pat, "is because of the gold there is down there."

"Sure," replied Mike, "they're always after gold, the English. If they were landed on an uninhabited island, they would not be there an hour before they'd have their hands in the pockets of the naked savages!"—*Harper's Round Table.*

New Kind of Woman.

John Lewis, a popular young man of this community, and Miss Ida Jones, a long hollow school teacher, were married last week.—*Maryville Times.*

"Ha, ha! I guess he thinks this trunk is loaded with lead"—but

"Willie erred."—*Life.*

Discrepancy Only Apparent.

Hungry Higgins—I don't believe I could walk a mile a day without a drink; could you?

Weary Watkins—No, I couldn't walk a mile without a drink, though I could walk 10 miles to git one. Queer, ain't it?—*Indianapolis Journal.*

An Able Name for a Society.

A society has been formed in Texas under the striking name of "The Eleemosynary Pro Bono Publico Society of Terrell for the Elevation of the Colored Youth of the State of Texas."—*San Antonio Daily Express.*

Mystified.

Mrs. Ripple—I hear Mrs. Joblots is a homeopathist.

Mrs. Whipple—She may be, but whenever I call there I never find her at home.—*Vanity.*

Evidently Easily Suited.

Homely Lady—O, I guess you can fill the place. My husband is an easy man to suit.

New Cook (looking at her)—Yes, mum, I can readily believe it.

Homely lady (to herself)—Strange, she should take that for granted, but probably she knows a superior woman like myself wouldn't marry a crank.—*New York Weekly.*

A Failing of the Sex.

The bicycle girl was almost in tears.

"I thought my disguise was perfect," she said. "I had this suit made just exactly like my brother's, and the hat is like his, too—and—and—everything else is like his, so I don't see how you could tell my sex so easily."

The young man laughed.

"Loosen your belt," he said. "A man does not pride himself on his small waist."—*Chicago Post.*

Wrong Half on Top.

A Difficulty in the Way of Complying with the Minister's Temperance Views.

A preacher with views on the Temperance question was walking soberly along a dusty road, says the Boston *Budget.* A farmer with an empty wagon, save that it contained a gallon jug, overtook him and asked if he did not wish to ride. The preacher, assenting, climbed into the wagon, and as they jogged along toward the next village the two fell into conversation.

Now, the preacher had his suspicions concerning the jug and led the talk around to the subject of Temperance, expounding his views at great length and with appropriate emphasis. Much to his surprise, his companion quite agreed with him. Nevertheless the preacher still continued to suspect the jug.

"My friend," he said presently, "would you mind telling me what you have in the jug here?"

"Liquor," said the farmer.

"I feared so," continued the preacher. "Now, my dear friend, you have quite agreed with all I have said on this great question of temperance."

"Yes."

"Can you not give a proof that you mean what you say and pour out this accursed liquor?"

"No."

"But I cannot understand"——

"Wall," said the farmer, "ye see I'd do it for ye, only half the liquor in that jug belongs to my brother."

"Then empty your half, my friend."

"But I can't do that, nuther. Ye see, his half's on top."

Culture of Mangels.

This root is of the easiest culture if the land be free from weeds. This is the only troublesome part of their management. But it is not difficult to get over even this common trouble. The land best fitted for the crop is a corn stubble or after potatoes, as the clean cultivation helps to clear the land of weeds. The land should be plowed in the Fall and crossed-plowed in the Spring, when a good quantity of old manure or a liberal supply of fertilizers is given. The fertilizers are the best, as they carry no weeds into the land, and thus lighten the labor of cultivation. The land is thoroughly well harrowed, and the seed—six pounds to an acre—is sown in drills 30 inches apart. A hand seed sower is most convenient for this purpose, as it leaves a roller mark in the soft soil by which the rows may be distinguished and the ground cultivated between the rows without waiting for the young plants to appear. By keeping the ground clean, thinning the plants to 10 inches apart, and frequent cultivation, the yield is usually 800 to 1,000 bushels to the acre. There are two kinds that are most popular, the long red and the yellow globe.

Lucerne or Alfalfa in Europe.

A correspondent of *The London Agricultural Gazette* writes:

I have for the past 15 years grown lucerne "as a constituent part of mixtures of grass seeds and other clovers." The mixture is sown on Spring corn with a seed barrow, harrowed, and rolled. I have found Pacey's ryegrass, cocksfoot, and crowgrass the best seeds to include in the mixture. Some of my land has been down for 15 years, but still shows a considerable proportion of lucerne.

In Switzerland and parts of France lucerne commonly forms a portion of the seeding of permanent pastures. I have frequently noticed lucerne plants in large numbers in Swiss pastures which have been laid down for at least 20 or 30 years, and in dry seasons, when other herbage is burned up, their luxuriant growth is very noticeable. It was this conspicuous power of resisting drouth which first attracted my attention to lucerne.

From long observation and experience I can strongly recommend lucerne as a portion of the seed for permanent pastures, particulary upon land containing a sufficiency of lime; but I should advise using a much larger proportion than the four pounds per acre which Prof. Wrightson is sowing. I have usually used about 20 pounds per acre, which will insure three or four crops a year for at least 12 years, by which time a valuable permanent pasture will have developed.

Two Kinds of Insects.

"In general, insects may be placed in two catagories, viz: Insects which eat the foilage, stems or fruit, and insects which pierce the epidermis and suck the juices. Examples of the former we find in the June beetle, tobacco worm, and procris worm; while the latter is represented by the various scale insects, the squash bug, and leaf-hopper.

"It is very evident that these two classes of insects will not succumb to similar treatment. In other words, the insecticides which we employ in destroying the 'eating' insects are of a different character from those employed in combating the 'sucking' insects.

"The application of an arsenic poison, such as London purple or Paris green, will usually be effectual in destroying such insects as eat the foilage or other portions of the plant; while, on the other hand, all insects that subsist on the juices of the plant, which they obtain by piercing the epidermis, must be destroyed by bringing them in contact with some such material as kerosene emulsion or a solution of whale-oil soap," says Prof. J. W. Toumey, Tucson, Arizona.

The Peanut.

Peanut vines for plowing under as a fertilizer are fully equal, if not superior, to crimson clover, and they have the advantage of maturing in half the time of any of the true clovers. Under ordinary favorable conditions the peanut will mature within 90 days from the time of planting, or be in condition for plowing under in 70 or 80 days; sown for the latter purpose, the rows may be nearer together and the plants thicker in the row. In our Northern States the seasons are not usually quite long enough to insure the ripening of a full crop of nuts, but a good crop of peanut hay, or plants for turning under for manure, can be obtained almost anywhere in the Middle States and along the southern line of the Northern, where there are warm, light soils.

$100 Reward, $100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages, and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer One Hundred Dollars for any case that it fails to cure. Send for list of testimonials.

Address, F. J. CHENEY & CO., Toledo, O.

Sold by Druggists, 75c.

When writing mention this paper.

THE DAIRY.

Skimmings.

Experiments at the Cornel Experiment Station showed that some cream separators left less than one-tenth of the butter fat in the skim milk.

Official figures published by the Bureau of Statistics of the Treasury Department show a remarkable increase of our exports of butter, although the average price has fallen somewhat.

Butter fats are neutral bodies which have scarcely any flavor when pure. The aroma or flavor of butter is chiefly developed from the curd or other constituents of the milk that are retained with the butter fat when the butter is made.

At Sheboygan Falls, Wis., a meeting of patrons of Habighort Bros.' creamery, about 70 farmers were present, and it was decided to make butter at four cents a pound and cheese at one and a quarter cents a pound, with the privilege of changing from one to the other at the option of the proprietors.

The Ohio Legislature has passed a law reducing the milk standard from 12½ per cent. solids to 11 per cent. solids, except in May and June, when 10½ per cent. solids shall be the standard. This action was caused by the prosecution of farmers in some sections, Cleveland particularly, for selling adulterated or sub-standard milk, when it was clearly proved that they were selling milk that came from the cow without watering or skimming.

Much has been said of the success of the Danish dairymen in competition with the rest of the world. The secret is out when the extraordinary economy of these thrifty people is considered. Four acres of land in that country keep one cow; 500 gallons is the average product; milk sells for 20 cents for three gallons with the separated milk returned. A little figuring shows a bare margin, and that is all, for the dairyman. Cheap living makes ends meet.

For nearly a year samples of imported butter have been analyzed in Great Britain to discover adulterations. The countries contributing samples, among which no adulterations were found, are: Argentina, 4 samples; Austria, 57; Canada, 39; France, 62; New Zealand, 21; United States, 63. The most adulterated samples were found among the product from Germany, Holland and Denmark, the first-named country being in the lead, with 35 per cent. of adulterated samples, as compared with the whole number tested.

During nine months ended March 31, official figures point to total exports of over 16,000,000 pounds, chiefly to England, against less than 4,000,000 pounds the previous like period. Exports in March, the latest official figures available, were 1,401,664 pounds (average value 15.4c.), compared with 677,519 pounds a year ago (average value 14.5c.)

The following table shows our best customers, recording the exports for seven months, with average export value:

	1896. Lbs.	1896. Av. Val.	1895. Lbs.	1895. Av. Val.
United Kingdom.	8,211,846	16.4c.	464,988	17.4c.
Germany	708,698	12.2	20,754	20.
Other Europe	1,232,166	13.6	80,010	15.
British North America	351,669	19.	100,431	18.4
Central America.	152,709	18.2	102,979	19.4
West Indies	1,228,016	15.6	1,123,817	17.4
Other	890,884		939,457	
Total	12,776,048	15.9c.	2,922,436	17.9c.

An examination of the Herd books for the past 10 years shows a remarkable increase in the registry of Holsteins. They increased more than fourfold in the decade ended 1895. Ayrshires and Devons have increased in number, but not in average value placed upon those registered, the Guernsey record attests their popularity and the newer breeds shows increasing popularity. The following table of comparisons shows the registered or pedigreed cattle of selected breeds in the United States, in years named, together with values, as compiled by the secretaries of the respective breeders' associations:

	1895 Registered.	1895 Living.	1895 Av. Val.	1896 Registered.	1896 Living.	1896 Av. Val.
Ayrshire	18,750	9,375	$160	12,867	6,433	$100
Brown Swiss	1,930	1,200	150	.....	....	....
Devon	17,007	14,503	81	10,187	8,000	81
Dutch-Belted	971	720	200	.....	....	....
Guernsey	12,547	8,500	165	4,947	3,100	140
Holstein	90,325	70,000	103	21,138	20,081	200
Jersey	150,000	100,000	100	51,000	....	....
Red Polled	4,403	3,000	80	.....	....	....

Stringy Milk.

This trouble with the milk may be due to sickness of the cow, some feverish condition that affects the whole system, but as in all milking animals, mostly the milk organs. Or it may be due to bad water or food, which at this time of the year is a common occurrence. Give the cow a pound of epsom salts and see that the food is sound and the water pure. The common occurrence of this difficulty in the dairy about the end of Summer might be wholly avoided by having a good supply of mangels or sugar beets for the cows, or even a good lot of cabbages, which will not hurt the milk if fed at the milking time. The sugar beet is by far the best root for cows, and is worth all it costs on account of its good effect on the health at this season, when feed is short on so many farms. If properly kept, the roots may be kept fit for use until July.

The Disk Churn.

This churn, which has been so highly spoken of in England, is an invention of that country, and has not been introduced here as yet. There are here probably quite as good churns in use, both of those kinds with a dash and those without. It is very probable, however, it may soon be heard of here, as everything good or promising to be so comes this way in time.

Prof. Frantz, a barber at Anaheim, Cal., drives a pair of ostriches in a road cart, and makes good speed with them.

Cleaning Milk Cans With Lime.

The Danish dairymen are using lime with good success in cleansing milk cans. The process is thus described:

First the skimmed milk for feeding that is turned from the creamery should be emptied at once. Then the cans are rinsed with cold water; then about a handful of lime with a little cold water is put into each can, with which solution the can and lid are scrubbed thoroughly inside and outside with a good brush, with special attention to seams and corners. The lime water is then poured out, and the can gets another scrubbing with clean, cold water. That a small amount of lime sticks in some seams and corners does no harm, but all loose lime should be rinsed out thoroughly. Lime kills acid more perfectly than soda, and the lime in the seams is really an advantage, as it keeps milk from settling there.

The final rinsing should be done with hot water, because even if cold water might be the purest it is harder with it to wipe the can perfectly dry. If hot water (or steam) is used the can will dry itself. The cleaned cans should always be kept where the air is fresh and pure.

A common argument against the use of lime has been that it wears the tin off. This is only the case if the cans are scoured, and will not happen if a brush is used. All other tin utensils should be cleaned in like manner.

Of late it has even been found practicable in some factories in Denmark to have the patrons whitewash such cans as they may not have in use, when the milk production is smaller. If properly done it does not injure the tin, and any milkman can easily try it. Sometimes the simplest devices are the most valuable.

Oleomargarine in France.

The French Government has taken stringent measures for the regulation of the trade in substitutes for butter. It is not often thought that this much-abused oleomargarine is a French contribution to the troubles of dairymen, and that it was invented during the siege of Paris by the German army, nearly 25 years ago, and now that it has spread all over the world, and has about half ruined the butter and cheese business everywhere, the authors of the mischief are kicking their own progeny out of doors. The proposed repression of it is to be made effective by forbidding dealers in it or in butter to keep for sale the two articles together, each being compelled by heavy penalties to keep but one only. The oleo is only to be sold in shops assigned for the trade by the authorities of each town. Heavy fines are to be levied on dealers who transgress the law.

PRICKLY LETTUCE.

Its Rapid Distribution All Over the United States.

Among the weeds of recent introduction in America, the prickly lettuce (Lactuca scariola) ranks next to the Russian thistle in the rapidity with which it has spread to new localities, and in the completeness with which it has occupied the area infested. Its range almost equals that of the Russian thistle, extending from ocean to ocean, and from southern Minnesota to northern Texas. It is most abundant in the region from western New York to eastern Iowa. There is a wide area from Montana to Mexico, including the Rocky Mountains and the Western plains, from which it has not been reported. It is present in the Great Basin in Utah, Idaho and Nevada, and west of the Cascades and Sierras in Oregon and California.

The first record that we have of the presence of this plant in America is a specimen now in the Harvard herbarium, collected at Cambridge, Mass., in 1863. In the fifth edition of Gray's Manual (1867) it is said to be found in "waste grounds and roadsides, Cambridge, Mass." Aside from this there appears to be no further record of it until 1877, when it was collected in St. Louis, Mo. From 1878 to 1883 it was reported from at least 22 localities in States bordering on the great lakes, many of these reports appearing in The Gazette for those years. It was introduced in Salt Lake City as early as 1880. During the subsequent decade comparatively little was written about it. In 1894, however, it became so abundant as to attract attention in many parts of the country. Hundreds of requests for the identification of this species were received by the Experiment Stations and by the United States Department of Agriculture. Surviving in spite of the dry weather, which prevented other vegetation from growing, the prickly lettuce became the most abundant and conspicuous of weeds in many places where it had never been noticed before. The alarm caused by the prickly lettuce in 1894 was due in part, doubtless, to the fact that it was often mistaken for the Russian thistle. During the season of 1895, just past, both the prickly lettuce and the Russian thistle have been better known and less has been heard from either of them, although the practical work of destroying them has been carried on with more vigor than ever.

In some localities the prickly lettuce is less prominent than it was last year. Instances are known where a few plants were noticed the first year; the following year they were abundant and large; the third year they were very abundant and smaller; the fourth year other vegetation began to choke them out. Insect or fungus enemies may have aided in subduing them, but there are no observations confirming this theory.

Small farming is making rapid progress in the Sacramento Valley. This year, for the first time, most of the valley towns are getting a home supply of strawberries and vegetables.

THE ORCHARD.

Cullings.

More farmers would grow cherries if the virtues of the Early Richmond variety were more fully understood. It is a hardy, rapid growing tree, not so liable as others to the attacks of plant lice and knot. It comes into bearing almost as soon as a currant bush, and bears immense quantities of sour but refreshing fruit very good for pies and for canning and much better than no cherries at all for eating out of hand. It succeeds everywhere and will endure much neglect.

Reports from all parts of the country show general prospects for all kinds of fruit east of the Rocky Mountains is fully equal to the very best for years. Aside from isolated sections in the older Middle and New England States the Winter was not severe enough to damage fruit buds, nor yet open enough to induce premature growth. The Spring was cold and backward in the early part, retarding bloom, and hot and forcing during April, crowding the period of bloom into fewer days than usual. Since buds began to swell there has been no recurrence of cold weather, and as a consequence the usual frost damage is almost entirely unknown. It is reported only from a very few of the most exposed situations in northern Texas and less numerous points in Missouri, and in each case only the earliest bloom was affected. The most striking feature of the information gathered by the American Agriculturist is the remarkable uniformity of the returns, including even the melancholy Delaware peach. If the season ends as it opens it bids fair to be one of low prices.

OLIVES IN ITALY.

A Very Profitable Crop after the Trees Come into Bearing.

The olive tree in Tuscany is propagated either from seed or from "ovoli"—those protuberances provided with "eyes" which grow on the main roots and at the base of the trunk of the olive. These are excised during the Winter and planted, but only three or four can be taken from the same tree without injuring it. The seedling is much hardier and healthier than a plant reared from an "ovolo," but on the other hand its development is very much slower. The former will not begin to bear fruit until it has beeu about 17 years in the ground, while an "ovolo" plant may bear in 10 years' time. It is reckoned that the olive tree does not attain its full growth and bearing capacity in less than from 40 to 50 years; hence it has been observed that he who plants an olive grove does so more in the interests of those who shall come after him than in his own.

The olive in Tuscany is not to be found at a greater elevation than about 1,500 feet. The hill plantations involve considerable expense. It is necessary to terrace the slopes and support the terraces with walls of dry masonry; provision must also be made for carrying off any heavy rainfall. At suitable intervals pits are dug to a depth of five or six feet and about four feet square, stones removed, and the loosened earth replaced; the young tree is then planted in the chamber thus prepared. An acre of land will afford space for about 182 trees, according to the practice in Tuscany, and the expense of such a plantation, exclusive of the cost of the land itself, is estimated at 15 lire (about $3) per tree, equal to about $546 per acre; this with cheap labor, at about 25 cents per day. The trees are generally pruned and manured at intervals of three years, a certain number of trees being attended to every year, so that all are taken in rotation. The expense is put at two lire (about 40 cents) per tree, but this without reckoning value of manure or cost of carrying it to the olive grove. A favorite manure is sheep droppings, hence sheep at certain seasons of the year are turned into the groves, where they feed upon the grass which grows there; at night they are penned up.

In full bearing, an acre of olives will produce on an average about 64 gallons of oil a year. One year the quantity may be very much greater, but the following year, after a full crop, the trees will probably bear little or no fruit. The olive blossoms in April or may, according to whether the season be normal or backward. April blossoming is considered more promising of a good result, as the fruit has time to develop before the great heat of Summer. In October, the olives begin to change color from green to purple-black and to carry oil; but maturity is not reached, even in the case of the fruit most advanced (since all the olives on a tree do not ripen simultaneously) until December; the later fruit may not mature until May, or even June.—*A. S. Rosenthal, Consul at Leghorn.*

A Good Peach Crop Promised.

Two hundred and sixty replies out of 300 inquiries sent out to the largest peach growers around Flemington, N. J., regarding their prospects for this year's crop, substantially report that the prospects for an immense yield are good. The cold Spring weather retarded the growth of the buds until the late frosts were over. The buds are now open and are healthy in appearance.

AN IRISHMAN'S REASON.

A group of Kentucky farmers were discussing fences. One only, defended a ratchet device, all the others preferred "the Page." Each in turn gave his reasons, a son of the "ould sod" last. "Begorra"! said he, "I'd rayther hev a cow that'l coom up hersilf than be goin arther her twice a day."

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A PARADISE OF PRUNES.

Santa Clara Valley, California.

A ride through one of the vast prune orchards when the trees are in full bloom is an experience never to be forgotten. Some of these orchards, consisting of 500 acres, contain 50,000 trees, their ages varying from five to ten years, and planted in regular rows about 20 feet apart.

Nor pebble, nor clod, nor blade of grass can be found among the friable soil of the miles-long aisles which intervene, tessellated by the flickering shadows of the swaying snowy petals which project on either side from flower-laden branches. Bird and bee and butterfly are each alive to the situation, and puncture the perfumed air of a cloudless May morning with song, and buzz, and voiceless wing.

Among this embarrassment of beauty walks the alert, intelligent orchardist, watching with the trained eye of an artist the development of the tiny bud of the embryo prune upon the tree, until picked at the prime of its perfection with the deft hand of an expert. In order to produce the desired uniformity of size and shape, each fruit-bearing bough is subjected to such thinning and pruning that there lie scattered around the base of a tree often more rejected prunes than are left hanging upon its branches.

As the Eastern plum pest, the curculio, is unknown in California, as scarcely a drop of rain falls upon the trees from May until November, and as there is no scorching sun to shrivel the delicate skin of the prune nor rough wind to mar its contour, a bough of full ripened clusters represents one of perfect prunes.

In an area from six to 12 miles square planted to fruit trees, 18,000 acres are in prunes alone.

They cover the billowy surface of the majestic foot-hills, as well as the plain, with a beautiful irregularity impossible to describe. At plucking-time thousands of busy hands are at work, chiefly those of boys and girls, preparing the luscious fruit for curing under the rays of the Midsummer sun.

The average yield when the crop is full is about eight tons per acre. The average cost of caring for the orchards, harvesting and curing such a crop, is $30 per acre, leaving a net income per acre of $210.

Discouraged Growers.

Orange growing is being abandoned on the peninsula of Lower California, and the orchardists are cutting down their trees and planting the land with coffee, cotton and sugar cane. The low prices obtained lately for oranges grown on the peninsula have discouraged the growers.

Avoid Complications

As you would avoid a plague. A complicated grain harvester is a plague. Truer words were never written than those of the late Dr. Holmes, when he said "The more wheels there are in a watch or in a brain, the more trouble they are to take care of." The simplicity of McCormick Harvesting Machines has won for them thousands of friends. The new Open Elevator is the simplest of harvesters and is not subject to the disorders and disarrangements resulting from the complicated construction of so many so-called grain cutting machines. There's nothing complicated about McCormick Mowers, either. They need oiling occasionally, but they don't bind, clog-up and "go to smash," after the manner of the ordinary mower. Same is true of the McCormick Corn Harvester. Its construction embodies the only correct principle—the only principle that will work in a Corn Harvester.

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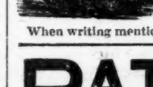

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